MONTANA DEPARTMENT OF TRANSPORTATION


# Design-Build Guidelines

***FINAL DRAFT***

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## GUIDELINES ABBREVIATIONS

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| Project Manager | (PM) |
| Construction Engineering Inspection | (CEI) |
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| Letters of Interest | (LOI) |
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| National Environmental Policy Act | (NEPA) |

# CHAPTER ONE

# *INTRODUCTION*

## 1.1 PURPOSE

To establish the Montana Department of Transportation's (MDT) process for procuring and administering the design, construction, and Construction Engineering and Inspection (CEI) services (unless an FHWA Full Oversight project) within one contract.

## 1.2 AUTHORITY

Montana Code Annotated, (2003), Sections 60-2-134 through Section 60-2-137 authorizes the Commission and Department of Transportation to establish and implement a Design-Build Contracting Pilot Program for highway construction with a maximum total cost of $20 million.

## 1.3 SCOPE

This procedure affects all MDT Divisions, Bureaus, Sections and Districts associated with the design and construction of transportation or transportation-related building projects.

## 1.4 BACKGROUND

Design-Build (DB) combines into a single contract the design, construction, and in certain cases, construction engineering and inspection [on Federally-funded projects MDT must have specific authorization from Federal Highway Administration (FHWA) if the Request for Proposal (RFP) includes CEI services], and acceptance requirements for a project, all in accordance with MDT design standards, specifications and contract administration practices. These projects allow the DB Firm to participate in the design as a means to reduce costs and expedite construction.

In 2003, the Montana Legislature authorized MDT to use the DB process (***MCA Section 60-2-134 through Section 60-2-137***) on buildings, bridges and roadway projects. The total cost of the DB contracting pilot program may not exceed $20 million.

The DB contracting process and contract administration will follow standard MDT practices, unless differences are otherwise identified. The Construction Engineer acts as the DB program manager and sponsors DB projects. The Construction Bureaus are responsible for conducting the DB contracting process for projects in close coordination with other MDT Divisions, Bureaus, Sections and Districts.

## 3.9 REFERENCES

MDT Design-Build Bid Blank
MDT Design-Build Proposal
MDT Design-Build Contract

# CHAPTER TWO

## *DEFINITIONS*

For purposes of this procedure, the following definitions apply:

2.1 **Adjusted Score Design-Build (ASDB)** means the contract award is based on the lowest adjusted score, which is determined by dividing the price proposal amount by the technical proposal score.

2.2 **Bid Proposal** means a separately sealed technical proposal and price proposal submitted by each DB Firm bidder.

In the case of a Low Bid Design-Build (LBDB) project, the 'bid opening' occurs when the price proposals are opened and the apparent low bidder is identified. MDT then opens the apparent low bidder's technical proposal to determine if it is responsive. Ten days after opening the technical proposal or posting an award notice, whichever comes first, all documents become public record, whether proposals have been opened or not opened.

In the case of a "Best Value" contract, the Technical Review Committee (TRC) opens the technical proposals for evaluation purposes. However, since the price proposals have not been opened, time does not begin. The TRC evaluates and scores the technical proposals. MDT then conducts a 'bid opening' where the price proposal is opened. Time starts after opening the price proposal. Ten days after opening the price proposals or posting an award notice, whichever comes first, all documents become public record.

2.3 **Design-Build Contracting** means the process of entering into a single contract between the Commission (MDT) and a Design-Build Contractor in which the Design-Build Contractor agrees to design and build a highway, structure or facility, or any other items required in a Request for Proposal (RFP).

2.4 **Design-Build Contractor**, also known as Design-Build Firm (DB Firm), means an individual, partnership, corporation, joint venture or other legally recognized entity that is appropriately licensed in Montana and that provides the necessary design and construction services, including contract administration. The entity may include a construction contractor as the primary party with the design professional as the secondary party or vice versa. The contractor or design professional cannot team with other partners to submit more than one bid per project. The secondary, either designer or contractor, on a Design-Build team cannot change, after award, without the written approval of MDT. Consultant firms that have been contracted by MDT to develop the Request for Proposal for a Design-Build project are not allowed to compete as part of a proposing DB Firm.

2.5 **Design and Construction Criteria Package** means the document provided by MDT that contains the design and construction information necessary to guide a prospective Design-Build Firm in the preparation and submission of a proposal for a design-build project. This package clearly defines the criteria essential to ensure that the project is designed and constructed to meet the needs determined by MDT. This package is part of the RFP.

2.6 **FHWA Full Oversight** means FHWA has review and approval authority for actions on the Interstate and NHS systems. MDT will be responsible for project level decisions for those Federal Aid Highway Program projects not on the Interstate and NHS systems.

2.7 **Letter of Interest [LOI] (Statement of Qualifications)** is used to refer to the process that establishes criteria for evaluating interested DB Firms. Criteria required for the LOI is stated in the advertisement. DB Firms desiring to submit bid proposals on Design-Build projects must submit a LOI setting forth the qualifications of members of the DB Firm and providing any other information required by the announcement of the project.

2.8 **Low Bid Design-Build (LBDB)** means the contract award is based on the lowest responsive bid.

2.9 **Building Project** means a project to provide rest areas, MCS facilities, welcome centers and other buildings incidental to the highway system.

2.10 **Non-Responsive** refers to any proposal that does not comply with the criteria defined in the RFP as determined by the Technical Review Committee (TRC).

2.11 **Project** means the project to be designed and constructed as described in the public announcement.

2.12 **Project Manager (PM)** is MDT's designee responsible for the management and administration of the Design-Build project.

2.13 **Request for Proposal (RFP)** means a part of the Design and Construction Criteria Package that contains a detailed scope of work, including design concepts, technical requirements and specifications, time allowed for design and construction, MDT's estimated cost of the project, deadline for submitting a proposal, selection criteria and a copy of the contract. The RFP package is provided to the short-listed DB Firms in the Adjusted Score Design-Build contracting method and to those DB Firms requesting an RFP in the Low Bid Design-Build contracting method. FHWA approval of the RFP is required on Full Oversight projects prior to authorization and release of the RFP to short-listed DB Firms. The RFP must clearly define all functions and responsibilities required by the DB Firm. This RFP should consist of the following:

2.13.3 **Dates:** Technical and price proposal due date; MDT's selection schedule; delivery of services/products date; MDT's submittal review time periods (if required); and payout schedule.

2.13.3 **Design and Construction Criteria Package:** The design and construction requirements clearly define the specifications essential to ensure that the project is designed and constructed to meet the needs determined by MDT. It includes the RFP and guidelines for preparation/presentation of technical proposals and the following:

Proposal evaluation criteria
Price proposal requirements
Identification of the DB Firm's Project Manager
Insurance requirements
Subcontract services
DBE requirements
Bonding requirements

2.14 **Request for Qualifications (Letter of Interest)** means a part of the Design-Build selection process that contains the desired minimum qualifications of the Design-Build Firm, a scope of work statement, project requirements, amount of reimbursement that the Commission has determined will be paid to prospective Design-Build Firms who qualify for the short list, but are not awarded a contract, and the selection criteria that MDT will use in compiling the short list of prospective Design-Build Firms to consider.

2.15 **Responsive** refers to a proposal that contains all the information and level of detail requested in the RFP and complies with the Design and Construction Criteria Package included with the RFP.

2.16 **Selection Committee** reviews the proposals from short-listed DB Firms and recommends the DB Firm to be awarded the contract. After the Technical Review Committee (TRC) evaluates the technical proposals and submits its findings to the Selection Committee, the Selection Committee reviews the TRC findings and the Price Proposals, makes a final selection, and submits a recommendation for award to the Commission.

As a minimum, the Selection Committee is comprised of the Construction Engineer (who will serve as Chairperson), the appropriate District Administrator and an appropriate Bureau Chief as appointed by the Construction Engineer. A representative from the Contract Plans Bureau will be a non-voting member and will serve as Recording Secretary at all meetings. Each member of the Selection Committee may appoint a senior management level alternate as appropriate.

2.17 **Technical Review Committee (TRC)** The TRC will evaluate the Letters of Interest (Statement of Qualifications) and establish the short list and evaluate technical proposals of the short-listed DB Firms.

The TRC is comprised of the Design-Build Engineer, Members of the Design-Build Team, PM and others as agreed upon by the preceding identified members, or appointed by the Construction Engineer. There will be a minimum of five members. For the success of the project, it is essential that the TRC be involved in development of the RFP and Design and Construction Criteria Package.

For bridge projects, the TRC should include the Bridge Bureau representative from the Design-Build Team.

For building projects requiring major renovations, additions, or new facilities that are intended for general public access, the TRC should include an architect, Facilities Manager and other appropriate MDT staff based on the nature of the work requested, complexity of the project, and availability of personnel for a timely selection.

2.18 **Value of Time Factor** means an adjustment to the price proposal to reflect the worth of time. This adjustment factor is based on the DB Firm's proposed number of days to complete the project multiplied by a value per day established by MDT in the RFP. This factor will be used for selection purposes only and will not affect MDT's liquidated damages schedule or any applicable special provisions for incentives/disincentives.

## CHAPTER THREE

## *ADJUSTED SCORE DESIGN-BUILD (ASDB) BID PROCESS*

There are currently seven "Best Value Award Methods" being used for DB projects:

- Low Bid DB
- Adjusted Bid DB
- Adjusted Score DB
- Weighted Criteria DB
- Quantitative Cost/Technical Trade-Off
- Qualitative Cost/Technical Trade-Off
- Fixed Cost – Best Proposal

The Adjusted Score Design-Build approach may be used when overall outcomes can be clearly defined and will typically fit the type and size DB projects anticipated in Montana. However, a number of alternatives may exist that could provide the outcomes desired. An example of this method is a bridge project where alternative foundations, spans and material types are acceptable.

### 3.1 PROJECT IDENTIFICATION

MDT and the Design-Build Contracting Board will establish the selection criteria for design-build projects and decide if contracting a specific project using the Design-Build

method will benefit MDT and MDT's customers. The project will then be identified and included in the work program.

It is anticipated that Account Numbers and Class Numbers used for Design-Build projects will be the same as other types of MDT projects and include the following:

| ACTIVITY | ACCOUNT # | CLASS # |
|---|---|---|
| Preliminary Engineering | 9102 | 10 and 11 |
| Right-of-Way Costs | 9202 | 10 and 11 |
| Utility Relocation Costs | 9302 | 10 and 11 |
| Construction Engineering Costs | 9402 | 10 and 11 |
| Construction Costs | 9502 | 10 and 11 |
| NHTSA Engineering Costs | 5002 | 10 and 11 |
| NHTSA Construction Costs | 5003 | 10 and 11 |

Programming and obligation of Design-Build project funds should be obtained for all work activities required by MDT and the DB Firm based on preliminary estimates. An obligation should be obtained for MDT Preliminary Engineering charges prior to award of the DB Contract. An additional obligation may also be required for right of way activities. An initial obligation will be obtained for the estimated DB Contract costs prior to award of the DB Contract and modified after the DB Contract is awarded to reflect the actual cost. The initial obligation should also include MDT costs for administration and oversight of the DB Contract and CEI services, if they are to be contracted separately by MDT. Separate accounting records should be maintained for MDT charges to the various Account Numbers during the project and those contained within the DB Contract. The RFP should specify the desired DB work activity accounting numbers and values should be assigned to each respective work activity account number by the DB Firm in order for MDT to track the cost of each activity.

Any anticipated stipends should be programmed in the initial obligation and any anticipated incentives included in the DB Contract obligation.

## 3.2 DEVELOPMENT OF DESIGN AND CONSTRUCTION CRITERIA PACKAGE

Individuals knowledgeable in the contracting requirements will undertake development of the Design and Construction Criteria Package for a Design-Build project and design professionals experienced in the application of the performance criteria appropriate to the facility needs. It is essential to the success of the project that members of the TRC be involved in the development of the Design and Construction Criteria Package. Early involvement by the TRC is a key to smooth and timely procurement of Design-Build services. Members of the MDT Design-Build Team and the PM should be members of the TRC.

If the project is subject to FHWA Full Oversight, the RFP must have FHWA approval prior to authorization and release to DB Firms. It is critical that FHWA be involved throughout development of the RFP and Design and Construction Criteria Package in order to meet FHWA requirements and expedite their approval.

The Design and Construction Criteria Package should clearly and completely identify Design-Build requirements and services, including any information, data, and services to be furnished by MDT. The Design and Construction Criteria Package will provide a summary of the project's objectives and furnish sufficient information so DB Firms can prepare bid proposals that include a technical proposal and price proposal. Criteria may include geotechnical analysis, surveying, permitting and utility coordination. The Design and Construction Criteria Package will state the specifications, design criteria and standards to be used in the design and construction of the project, unless otherwise noted in the RFP.

DESIGN AND CONSTRUCTION CRITERIA PACKAGE

(a) For Design-Build contracts when CEI services are included, the DB Firm will provide Quality Control Engineering, Quality Assurance Engineering services and use the latest MDT Standard Specifications (including Materials Manual) for preparation of Price and Technical Proposals. MDT will provide Independent Quality Assurance Engineering (IA) services in accordance with the latest Standard Specifications.

For Design-Build contracts when CEI services are not included, the DB Firm will provide Quality Control Engineering services and use the latest MDT Standard Specifications (including Materials Manual) for preparation of Price and Technical Proposals. MDT, or a CEI Consultant contracted by MDT, will provide Quality Assurance Engineering services and MDT will provide Independent Quality Assurance Engineering (IA) services in accordance with the latest Standard Specifications.

(b) For Design-Build contracts when CEI services are included, add the following requirements with Appendix A (Quality Control Engineering and Quality Assurance Engineering Scope of Services) attachment.

**Appendix A - Quality Control Engineering and Quality Assurance Engineering**

MDT is responsible for providing Independent Quality Assurance Engineering (IA) and will perform oversight duties including: project management; inspection review; report review; contract administration; contract payment and any IA testing.

The DB Firm will provide Quality Control Engineering and Quality Assurance Engineering. All activities will be under the direction of the Quality Control Engineer, a Licensed Professional Engineer in Montana.

Any reference in the Standard Specifications (including Materials Manual) to testing by MDT or the Contractor will be assumed to mean by the DB Firm.

## 3.3 CONTRACT NUMBER ASSIGNMENT

Design-Build projects will be assigned project numbers using the same process as other MDT construction projects.

## 3.4 OBLIGATION

The Contract Plans Bureau will ensure that a request for obligation of funds is approved by the Fiscal Programming Bureau before opening the bid proposals.

## 3.5 ADVERTISEMENT

The time period for advertisement will be from mail-out of the RFP to receipt of a Design-Build proposal. The actual length of time that the advertisement is publicized is at the discretion of MDT. Advertisements will be publicized on the Internet web site at ***http://www.mdt.state.mt.us/cntrct/contract.htm***. Additionally, MDT may utilize other forms of communication, such as newspapers, magazines, mail-outs, television or radio to announce the project.

The advertisement will include, as a minimum, the name and description of the project; the County location of the project; major type(s) of work required; any minor types of work that are required for the project, but not normally associated with the major work; estimated construction cost of the project, if applicable; how and where DB Firms can respond; any additional technical qualifications desired; criteria on which Letters of Interest will be evaluated for the short-listing process; time frames for Letters of Interest and submitting bid proposals; number of copies to be received; how respondents will be selected; and tentative dates for short-list and final selection.

All advertisements should summarize MDT's selection schedule for the prospective DB Firms. The selection schedule should provide an outline of specific calendar dates and clearly identify the time allotted for the preparation of DB proposals. Each project advertisement should be drafted to fit the unique needs of that particular project. The advertisement for a DB Contract with CEI services should also have the following in "Project Description":

Construction Engineering and Inspection (CEI) services will be provided by the DB Firm.

## 3.6 LETTER OF INTEREST [LOI] (STATEMENT OF QUALIFICATIONS)

For Low Bid Design-Build (LBDB) projects, Adjusted Score Design-Build (ASDB) projects and other "Best Value" contracting methods, a Letter of Interest [LOI] (also called a Statement of Qualifications) will be required from interested DB Firms. An LOI should be sent to the Contract Plans Bureau. At least three LOI should be received in order to proceed with the RFP. If three LOI are not received, MDT may re-advertise. LOI should not be more than five pages in length and include a Contact Person, with name, phone number and e-mail address. Buildings or complex projects may require more detailed LOI. LOI will be evaluated based on the required criteria stated in the advertisement.

## 3.7 CONSIDERATIONS FOR REQUEST FOR PROPOSAL (RFP) DEVELOPMENT

Identifying a project for Design-Build:

Prior to advertisement, existing right of way must be verified and a determination made whether the project can be built within existing right of way. If additional right of way will be required, a decision must be made by MDT in the identification stage if right of way services will be included in the Design-Build contract or addressed separately by MDT.

Design-Build contracts may be advertised and awarded prior to completion of right of way activities. Construction activities may not begin on any portion of a project until title to all right of way and easements necessary for construction of the project has been vested in the state or a local government entity and a right of way certification has been issued for construction of the project. (See Chapter 8, Right of Way Issues on Design-Build Projects.)

(2) Providing CEI services is an option in the Design-Build process. A decision must be made by MDT in the identification stage if CEI services will be part of the DB Contract.

(3) MDT will designate a multi-experienced DB Team to assist in development of the RFP and Design and Construction Criteria Package. Team members will be identified early so that all disciplines that are essential to the type of work in the project scope are aware of their role and responsibilities. The DB Team should consist of no more than ten MDT members and one FHWA representative.

(4) The type of funding must be identified in order to include the correct bid documents in the RFP. If Federal funds are involved, all the normal procedures for approval and authorization must be followed. Programming and obligation of project funds should follow MDT accounting procedures and must be completed prior to advertising the project. This process takes some time, so allow at least two weeks.

(5) Advertisement will be posted on the MDT web site and depending on project need, other sources for notification may be utilized.

Stipends - The issue of reimbursement for preparation of DB Firm proposals will be addressed early in the process so funds are made available. Federal funds may be used to reimburse short-listed firms for their effort in the preparation of the technical proposal. If the project is relatively small, eliminating the reimbursement may be MDT's option.

Once a project has been identified as Design-Build:

(1) Design-Build lends itself to allowing preliminary work to be performed on a project prior to advertisement. Such work may include survey, geotechnical investigations, permitting or other items of work that could be performed by in-house MDT staff, independent of the design and construction. The more information available, the more detail can be included in the RFP and Design and Construction Criteria Package. A decision will be made by MDT related to the extent and amount of preliminary work to

be performed before development of the RFP and Design and Construction Criteria Package for the project advertisement.

(2) Establish a preliminary schedule. A Design-Build schedule is very different and does not resemble a design/bid/build schedule. Consider the terminology normally used for a schedule and that used with Design-Build. It may not be the same and needs to be understood by those keeping track of the schedule. The RFP and Design and Construction Criteria Package should be complete and ready for release when the advertisement appears. A Design-Build schedule is very front-end loaded for RFP and Design and Construction Criteria Package development, review, appropriate approvals and advertisement time. Federally Aid projects require FHWA involvement throughout development of the RFP and Design and Construction Criteria Package and require FHWA approval of the RFP prior to release to DB Firms for Full Oversight projects.

(3) Preparing an RFP and Design and Construction Criteria Package is time consuming and requires review by various disciplines within MDT. Time will be allowed for two reviews and for modifications. A decision to include CEI services will be made early so that it can be included in the RFP.

(4) Use of Design-Build eliminates unnecessary items. During development of the RFP and Design and Construction Criteria Package, any request for documentation, plans, quantities, pay-items, calculations or electronic files should be evaluated to determine if it is necessary to include them in the RFP.

(5) MDT review times will be set in the RFP. These times are absolute. If comments are not provided to the DB Firm by the cut off date, the DB Firm may continue their work as if approved. The Design-Build Team members will discuss review times with the reviewing units to ensure their understanding. Review times will be significantly shorter (about 15 calendar days) than in the current MDT process. The reviews will be for "meeting design criteria" only. There should be less concern for appearance of submitted items.

(6) Although there are established DB Firms, most of the responses to MDT advertisements for Design-Build projects will likely be received from two or more separate companies that have teamed up specifically for a project. A Contractor or Design Consultant may lead the team, but Contractors have more bonding capacity than Design Consultants and assume most of the risk. Design Consultants have a better knowledge of the professional services contracting procedures and are more familiar with writing technical proposals than Contractors.

## 3.8 GUIDELINES FOR REQUEST FOR PROPOSAL (RFP)

1) Project Time/Schedule

- MDT's selection schedule (should correspond to advertisement and include from advertisement to NTP) using specific calendar dates and time allotted for preparation of qualification statements and proposals.
- MDT's time period for services and/or products to be delivered.

- MDT's time of performance requirements in the scope of services (elapsed consecutive calendar days from NTP).
- Require DB Firm to develop project schedule using CPM.
- DB Firm's submittal of design development drawings.
- DB Firm's submittal of construction documents.
- 30-60 day plans preparation and review period front-loaded in schedule prior to construction (geotechnical investigations and clearing/grubbing may begin during this period).
- MDT or third party dates or time regarding site availability, completion of environmental report/permits, or delivery of MDT equipment or materials (elapsed days).
- MDT's submittal reviews (if required) within a specific time period.
- If completion date is critical, MDT will indicate about, but not-later-than qualifier in project schedule.

2) Payout Schedule

- Invoicing and payment process.

  - Progress payments based on: a) monthly, or b) specific tasks completed.

- Provisions for tracking DBE participation.

3) Technical Proposal

- MDT must provide detailed instructions regarding content and format.
- MDT will provide Technical Proposal Evaluation Criteria.

4) Price Proposal

- DB Firm's proposal will include lump sum.
- DB Firm's proposal will provide breakdown for major items.
- DB Firm's proposal will provide breakdown for major tasks that are consistent with major tasks/functions listed in the payout schedule.
- Bid Blank Forms.
- If extenuating circumstances, such as short response time, MDT will allow price proposal to be submitted later than technical proposal. This must be stated in the advertisement and RFP.

5) Subcontract Services

RFP will contain language-allowing subcontracting by DB Firms.

6) DBE Goals and Requirements

MDT's goals/requirements established: a) for the whole project, or b) for each category of services (i.e., design, right of way, CEI services, construction).

7) Scope of Services

- MDT's project objectives.
- Design Services and Requirements

  - Geotechnical Analysis

  - Surveying

  - Right of Way

  - Permitting

  - Utility Coordination

- Specifications
- Design Criteria and Standards
- Construction Engineering and Inspection (CEI) Services/Requirements may include:

  - Construction Inspection

  - Off-site Prefabrication

  - Materials Sampling and Testing

  - As Built Drawings

  - Surveying

  Requirements on types and frequency of:

  - Reports

  - Submittal of shop drawings

  - Level of detail and type of documentation of construction material

  If CEI Consultant is hired by DB Firm, CEI Consultant must provide monthly reports to MDT with outline of progress, problems, corrective actions proposed/implemented and status of corrective actions. For Federal Aid Full Oversight projects, FHWA must authorize RFP to allow CEI Consultant to be part of DB Firm.

- Construction Services/Requirements

  MDT specifications (standard, supplemental, or special provisions)

May require reference to local/state building codes, national standards or others.

Any particular construction processes/techniques necessary (describe unique values desired and let the DB Firm select construction method/technique).

- Permits

  MDT must state what Permits and Easements are necessary, who will be responsible for obtaining, and how coordination will occur.

  MDT needs to contact resource agencies up-front and determine what will NOT be permitted for the project.

- Design Plans and Engineering Calculations Review
- Design plans, shop drawings, engineering calculations (including, but not limited to) required for submittal by the DB Firm to MDT for verification of compliance (not approval).
- Requirements for packaging submittals and backup information.
- Shop drawing review routing process.
- Utilities

  The DB Firm will provide MDT with utility construction plans and other information required to obtain Utility Agreements. Utility Agreements will be processed and executed by MDT.

- Easements/Right of Way

  Existing R/W must be verified and a determination made whether additional right of way will be needed. If additional right of way is required, the scope must clearly identify whether right of way services are included in the contract or will be handled separately. (See Chapter 8, Right of Way Issues on Design-Build Projects).

  The DB Firm is responsible for acquisition and cost of temporary easements or leases it may require for construction equipment, materials, and operations on property that will not be incorporated into construction of the project.

- Existing Project Features or Systems

  Scope will specify the responsibility for demolition and disposal or retainage of existing features or systems no longer necessary to the project.

- Quality Control (QC) Requirements

  Scope must identify QC requirements that apply (in addition to those in specifications, policies and procedures) and those that do not apply (designer not required to submit phase plans to MDT for review).

  DB Firm required to explain their QC program for plans preparation and construction.

- Independent Assurance

  MDT will continue Independent Assurance (IA) program whether MDT or DB Firm hires CEI Consultant.

  MDT's Project Manager has right to review records/conduct tests to ensure quality products/services are provided.

- Survey Requirements

  Scope will specify any survey information required.

  MDT will notify DB Firms of any existing survey and mapping information available.

- Final Documents

  Scope will define final documents required by the DB Firm upon project completion to include: as-built final plans (100% automated), engineering reports, shop drawings, test results, documentation and daily reports.

- Staffing Requirements

  Scope will outline minimum training, experience requirements and staffing level for professional personnel and key construction personnel.

- Geotechnical Requirements

  Scope will specify geotechnical information or reports required by MDT. MDT may perform preliminary geotechnical work in preparation of scope or geotechnical investigations to save short-listed DB Firms time and expense.

  MDT will provide available existing geotechnical information to short-listed DB Firms.

- Items To Be Furnished by MDT

  Scope will include sections detailing items and services to be furnished by MDT such as data reports, computer services, materials, equipment, testing devices or other items that may affect bids, technical approach or environmental permits.

- Computer Services

  Scope should include list of MDT computer programs allowed to be used during design and construction of the project. DB Firms should identify in their technical proposal which programs will be used.

- Issue Escalation

  Scope will include an issue escalation matrix or process for addressing questions/disagreements, stating chain of command in MDT (beginning with Project Manager). Time frames for resolving the conflict should also be included. DB Firms will provide a similar list of people.

- Warranty/Contractor Guaranteed

  Scope with project warranty/contractor guaranteed requirement should show the specified number of years and details of coverage. As a general rule, routine maintenance is not covered by warranty.

- Professional Liability and Bonding

  Scope will include professional liability insurance requirements with dollar amounts and length of time clearly spelled out.

  DB Firms must be capable of providing Performance and Payment Bonds for the full amount of the design-build contract.

- Public Involvement

  Scope must clearly define the level of coordination/involvement with interested persons, groups and organizations required for the project.

- Construction Problems Resolution

  Scope should define process to resolve construction problems.

  a) If resolution does not change original intent of the RFP and technical proposal, the DB Firm will be responsible for developing the design solution to the construction problem and the CEI Consultant will be responsible for review and concurrence. If CEI Consultant has

concerns, the MDT Project Manager will involve appropriate personnel to resolve.

b) If resolution alters the original intent of the RFP and technical proposal, the DB Firm will develop and send proposed solution to the MDT Project Manager for review and concurrence by the appropriate personnel to resolve. The CEI Consultant will be copied.

## 3.9 PREPARATION OF REQUEST FOR PROPOSALS (RFP)

If the project is an FHWA Full Oversight project, the RFP will be submitted to FHWA for approval prior to release to DB Firms.

### (1) Project Time/Schedule

The RFP will state a time period in which the services and products are to be delivered. Time of performance requirements in the RFP will be stated in elapsed consecutive calendar days from the date identified in the notice-to-proceed so changes in the schedule to solicit, receive, evaluate, select and award can be changed without affecting the project schedule. When the completion date is critical, the RFP must include a "but-not-later-than" qualifier in the project schedule. An outline of the selection schedule should be included in the RFP. MDT's selection schedule is the schedule of the entire selection process and should include all activities from initial LOI advertisement to notice-to-proceed. The schedule should be stated in specific calendar dates and should clearly identify the time allotted for preparation of LOI (Qualification Statements) and Design-Build proposals.

The DB Firm's project schedule should depict the stage in the Design-Build process that the DB Firm intends to build each element or phase of the project. The DB Firm's project schedule will be developed using Critical Path Method (CPM) techniques and specify the time frame for interim activities. These activities may include submittal requirements of the DB Firm, such as design development drawings or construction documents. The CPM schedule should also include activities for requirements of MDT directly or through a third party, such as site availability, completion of an environmental report, permits or the delivery of MDT furnished equipment or materials.

The interim deadline requirements should be stated in elapsed days and may be an obligation of the DB Firm or MDT. The obligation of MDT to complete specific submittal reviews, if required, within a specified time period may also be included in the project schedule.

It is recommended that the RFP require a 30 to 60 day plans preparation and review period be front-loaded into the schedule prior to allowing the DB Firm to begin actual construction. This will allow the design process to proceed ahead of the construction and provide sufficient time for MDT to conduct conformity reviews. The plans preparation time must be clearly outlined in the RFP so the DB Firm can include it in their contract time calculation.

It may be appropriate to allow certain construction activities such as geotechnical investigations, clearing and grubbing to begin during the plans preparation period. Specific details related to allowed activities should be included in the RFP.

**(2) Payout Schedule**

The RFP must clearly address the invoicing and payment process, including a payout schedule. The payout schedule should be based on major, well-defined tasks related to the DB Firm's CPM schedule. The payout schedule should also include provisions for tracking DBE participation. Details of the payout schedule will be finalized between the selected DB Firm and MDT after the project is awarded. Examples of payout schedules are based on monthly payments or percentage completion of work schedule payments.

**(3) Technical Proposal**

The RFP will include well-defined technical proposal requirements. This should include detailed instructions regarding the content and format.

**(4) Price Proposal**

The RFP will include well-defined Price Proposal requirements. Design-Build projects are bid lump sum and paid through a payout schedule based on major work activities or tasks. The DB Firm's price proposal will include the lump sum price, as well as the bid blank forms.

The RFP will include the appropriate Design-Build pay items that reflect the scope of the work in the Bid Proposal Form. The RFP will also include any "Do Not Bid" pay items and quantities in the Bid Proposal Form.

**(5) Subcontract Services**

The RFP will contain language that allows DB Firms to subcontract portions of their work. Members of the DB Firm (contractor or designer) cannot be changed after contract award without written consent of MDT. Failure to receive approval on such a change will result in contract cancellation.

**(6) DBE Requirements**

The RFP will address MDT's commitment to diversity in contracting. Utilization of women and minority-owned businesses is encouraged by MDT for all projects.

**(7) Technical Proposal Evaluation Criteria**

The RFP will include the evaluation criteria and point system to be used by the TRC to evaluate technical proposals on Adjusted Score Design-Build (ASDB) projects. The criteria will be established by the TRC to meet the needs of a specific project.

**(8) General Liability Insurance, Professional Liability and Contract Bonding**

**General Liability Insurance:** The RFP will include current Standard Specifications regarding general liability.

**Professional Liability:** The RFP will stipulate the amount and term of coverage for professional liability insurance required.

**Contract Bonding:** The RFP will require that DB Firms be capable of providing a performance and payment bond in the full amount of the Design-Build contract.

### (9) Public Involvement

Since public involvement may be an important aspect of project development, the level of public coordination and involvement required for a specific project will be defined in the RFP. Public involvement includes communicating information regarding development of the project to all interested persons, groups and government organizations.

### (10) Complex Issues

If there is an issue related to having independence for verification testing and oversight, the following scenarios provide clarification:

Scenario 1: The design, construction and inspection are included in one Design-Build contract. For Full Oversight projects, FHWA requires MDT to provide verification testing and oversight (IA) outside of the DB Firm's contract. This can be accomplished with MDT forces or with a CEI Consultant contract. The CEI Consultant must be completely independent of the DB Firm (Contractor, Designer and CEI Consultant). There is no requirement for independence within the DB Firm.

Scenario 2: Similar to Scenario 1, but using State funding. The design, construction and inspection are included in one Design-Build contract. Because no federal funds are being used for the project, there is no requirement that MDT provide verification testing and oversight outside of the DB Firm's contract. The DB Firm's CEI Consultant must be independent of the DB Firm. There is no requirement for independence within the DB Firm.

Scenario 3: Includes only the design and construction in the Design-Build contract. The CEI Consultant is contracted directly with MDT. MDT's CEI Consultant must be independent of the DB Firm. There is no requirement for independence within the DB Firm.

The criteria to determine independence is that the Consultant providing CEI services for MDT must be independent of the DB Firm, regardless of their contracting agent.

If a consultant developed or assisted in development of the RFP and Design and Construction Criteria Package for MDT, the consultant must be independent of the DB Firm, but MDT may contract with the same consultant for CEI services.

Any CEI consultant contracted by MDT for DB projects will be in accordance with MDT's Consultant Services Procedures Manual.

## 3.10 SHORT LIST DEVELOPMENT BY TECHNICAL REVIEW COMMITTEE (TRC)

The TRC, comprised of members as identified in Section 2.17, Chapter 2, Definitions, will develop the short list based on Letters of Interest (Statement of Qualifications) received from responding DB Firms. Contract Plans Bureau will provide the TRC with a copy of all Letters of Interest and supporting information to be used for evaluation purposes received from all responding DB Firms. Based on this information, the TRC will short list a minimum of three (or all responding, if less than three DB Firms submit Letters of Interest) DB Firms to be considered. The evaluation process for short listing should include all entities within the DB Firm, including contractor, designer, CEI Consultant (if appropriate) and any major subcontractors listed in the Letter of Interest. No person developing the short list may act as a voting member on the Selection Committee making the final selection recommendation.

The evaluation criteria for short listing apply to both construction contractor(s) and design professional members of the DB Firm, when applicable:

1) Past performance ratings received by key members of the DB Firm on current and previous MDT projects, or other performance data supplied by the DB Firm.
2) Information contained in the Letter of Interest. As a minimum, the DB Firm's construction contractor's current workload, bonding capacity and past performance.

### 3.10.1 Short List Evaluation Guidelines

The purpose of this section is to provide guidelines to allow the TRC to evaluate LOI and reduce them to a short list ranked listing of qualified DB Firms eligible to receive the RFP and Design and Construction Criteria Package.

Contract Plans Bureau will evaluate the DB Firm's bonding capacity prior to sending the LOI to the TRC.

The TRC should take into consideration the following criteria as it applies to the project, but not all criteria will apply or may have little value for the particular project. The TRC should determine the criteria in advance and its importance in the evaluation of the LOI to produce the ranked short list. The TRC is to determine the specific appropriateness of items 2 and 3, since MDT does not have a history with firms using the Design-Build process. The criteria are:

1. Past Performance Grades: Contractor, Designer, and CEI Consultant (if CEI is included in contract).
2. Joint experience of the firms working together.
3. Design-Build experience of the DB Firms.
4. Similar type work experience.
5. The current workload of the DB Firms.
6. Time delays on past projects.
7. Experience of key personnel.

8. Safety record.
9. Firm organization, resources and location.
10. Environmental record.
11. Incidents of litigation/disputes history.
12. R/W and Utilities
13. Other categories the TRC determines.

### 3.10.2 Joint Experience of the Firms Working Together

It may be beneficial to have information about experience that the major firm's members have had in the past. Traditional projects may have involved the Designer and Contractor working together during construction. This could include but not be limited to Design-Build. They may have a history of working with each other that has supported their coming together as a Design-Build team. Many Design Consultants use Contractors for constructibility reviews as well as Contractors using Design Consultants for design issues. This past history can also include projects where the Design Consultant member designed the plans and the Contractor built the project. Even though some of these projects may or may not have been transportation projects, it still demonstrates that the firms have a confidence level in each other that has led to teaming again. This may be considered a positive in the short-listing process, as compared to a Designer and Contractor that have not worked together in the past.

### 3.10.3 Design-Build Experience of the Firms

Consider the individual firm members past experience with Design-Build projects of similar type (bridge, roadway, building) as well as the experience of the complete team on past Design-Build projects. Consider the overall project type, as well as the complexity and unique features of past projects as compared to the demands of the advertised project. Past Design-Build experience could be drawn from projects contracted by MDT, other DOTs, private industry or local governments. The criteria should carry a heavy emphasis on very sensitive projects. Projects, such as a complex bridge project, would be the standard for giving the criteria a heavy emphasis. Remember, many firms currently doing business with MDT do not have a history of Design-Build.

### 3.10.4 Similar Work Type Experience

Consider experience that clearly demonstrates that the DB Firm has performed construction of the same type, scope and complexity as the advertised project.

### 3.10.5 The Current Workload

Verification of the DB Firm's bonding capacity should exclude any team unable to bond the project from being considered. There may be several Design-Build projects in progress concurrently throughout the state. These projects will attract Design-Build firms that are familiar with the process and have an established team. This may lead to the same DB Firms submitting an LOI on multiple

projects. Knowing the firm member's current work load and potential work load (both Contractor's and Design Consultant's work load) may assist the TRC in determining the DB Firm's ability to perform the work for the project currently under consideration. In addition, both the Contractor and Design Consultant may have been successful in winning recent design/bid/build projects. The DB Firm's staff identified in the LOI may be identified in other LOI or already working on other projects. The TRC should take into consideration the current workloads of both the Contractor and Design Consultant teaming to submit the DB Firm LOI. This consideration should also include projects for other local governments and private industry. If members of a DB Firm have already been selected for several projects, it may benefit MDT to consider other firms in order to allow them a chance to perform Design-Build for MDT.

### 3.10.6 Time Delays on Past Projects

Timely completion of past projects should carry a heavy emphasis. DB Firms who have demonstrated the ability to finish jobs on time when they have encountered conditions differing from those represented in the plans on current or past MDT projects should be given greater consideration. There is no known reporting format to substantiate this performance. It will be subjective information MDT construction personnel will have based on past experience with Contractor performance. DB Firms with one (1) day or more of liquidated damages on three (3) or more contracts in the past year should not be considered. Reports of other Owners (Cities and Counties) on non-MDT projects may also be evaluated.

### 3.10.7 Experience of Key Personnel

Consider the experience of key personnel who are proposed by the DB Firm to be in charge of the day-to-day work on the project. This includes the key persons in responsible charge of construction, design, inspection and testing.

### 3.10.8 Safety Record

The DB Firm's performance in the safety area can be considered by past performance on construction projects or any citations by OSHA for safety violations.

### 3.10.9 Firm Organization and Regional Experience

Organization of the proposed DB Firm and subcontractors should be evaluated for ability to perform the project. The location of the DB Firm and the ability of the members to work together should also be evaluated. The DB Firm members experience with local and state government entities, permit and regulatory agencies and community groups can also be evaluated.

### 3.10.10 Environmental Record

The performance of the DB Firm can be evaluated by citations by DEQ and EPA. This information will generally be published in the daily clips or newspaper articles. MDT construction personnel's experience with the DB Firm related to NPDES requirements can also be used.

### 3.10.11 Incidents of Litigation/Disputes History

Review contractor claims records. A history of contractor claims pertaining to additional compensation or time extensions that are not negotiated and resolved through an Administrative Settlement, or final estimate quantities disputes that proceed, after final acceptance, to court or arbitration. Also, a history of disputes being escalated to the Board of Contract Appeals should be considered.

### 3.10.12 R/W and Utilities

Review the performance history of DB Firm and subcontractors for R/W services (if applicable) and utility relocation work.

### 3.10.13 Other

There may be other criteria, unique to the proposed project, that warrants inclusion in the initial evaluation that is not listed above. The TRC should recognize this in development of the RFP.

The TRC may take many approaches to reach a short list. The short list should be a list with the preferred ranking of DB Firms eligible to receive the RFP and Design and Construction Criteria Package. The list should have a summary of strengths and/or weaknesses of each DB Firm. Some processes that may be used by the TRC include:

(1) Matrix ranking giving categories equal weighting.
(2) Matrix ranking giving categories with unequal weighting.
(3) Individual ranking, group discussion and group ranking.
(4) Group discussion, individual ranking, most top rankings win.
(5) Group ranking, weighting applied by Selection Committee, high scores win.

A detailed description of how all five of the above processes work is included in Section 3.12, Methods of Evaluation.

## 3.11 REVIEW PROCESS FOR DEVELOPING A SHORT LIST

(1) The TRC should determine the methodology they will employ in the selection process and the criteria they will use in advance of receiving the LOI. Non-voting technical advisors may also be used for needed expertise.

(2) Check all evaluation categories to make sure minimum qualifications are met for the category.

(3) Each TRC member will evaluate the relative merits of each DB Firm using any logical method that can be justified. The end result of this evaluation process will be a list, using whole numbers and starting with 1, that ranks each DB Firm starting with the strongest firm and ending with weakest firm.

(4) The rankings of all TRC members will be put in numerical order with the DB Firm that has the lowest numerical value ranked first. The numerical list will then be numbered starting with the number 1, with whole numbers in order to establish the final ranking. If averaging is used, DB Firms may have the same average numerical ranking value. Thus, these DB Firms will receive the same final ranking. As an example, there may be two DB Firms that are ranked third.

(5) The TRC, as a group, will establish a written list of strengths and weaknesses for each DB Firm in order to justify that DB Firm's final ranking. DB Firms at the top of the ranking list must have far more strengths then weaknesses and DB Firms at the bottom must have far more weaknesses then strengths.

## 3.12 METHODS FOR EVALUATION

The following are detailed explanations for five methods that have been used in conducting evaluations for short listing.

### 3.12.1 Matrix Ranking Giving Categories Equal Weight

(1) Develop a matrix using the aforementioned criteria.
(2) Rank each DB Firm by criteria on a 1 to 10 scale, with 10 being best. This can be done by the group or by individual TRC members.
(3) If done by individuals, average the individual grades by criteria and per DB Firm.
(4) Sum up the averaged criteria by DB Firm, highest scores win.

### 3.12.2 Matrix Ranking Giving Categories Un-Equal Weight

(1) Develop a matrix using the aforementioned criteria and determine the weight to give each criteria.
(2) Rank each DB Firm by criteria on a 1 to 10 scale, with 10 being best. This can be done by the group or by individual team members.
(3) If done by individuals, average the individual grades by criteria and per DB Firm.
(4) Apply the pre-determined weight to all criteria.
(5) Sum up the averaged and weighted criteria by DB Firm, highest scores win.

### 3.12.3 Individual Ranking, Group Discussion, Group Ranking

(1) Each TRC member ranks the DB Firms, 1 thru the number of LOI there are to be evaluated, prior to getting together as a group using the aforementioned criteria.
(2) The group discusses the strengths and weaknesses of each DB Firm.
(3) The group then ranks the DB Firms.

### 3.12.4 Group Discussion, Individual Ranking, Most Top Rankings Win

(1) Group discussion of strengths and weaknesses of all DB Firms using the aforementioned criteria.
(2) Individuals on the TRC rank all DB Firms from 1 thru the number of LOI there are to be evaluated.
(3) Average the individual rankings.
(4) The DB Firm with the lowest average is the top ranked DB Firm for the short list.

### 3.12.5 Group Ranking, Weighted Applied by Selection Committee, High Scores Win

(1) The TRC develops a matrix, as in the second method, except the Selection Committee will provide the weight to apply after the TRC has evaluated the DB Firms on all evaluation criteria being examined. The Selection Committee determines the weight to be applied to each criteria, but does not reveal it to the TRC.
(2) The weights should be on a scale of 1 to 10, with 10 being best.
(3) The Selection Committee's weights are applied and the higher ranked DB Firm is selected.

## 3.13 PRE-BID MEETING FOR SHORT-LISTED DB FIRMS

A pre-bid meeting may be held for all short-listed DB Firms, with FHWA being invited on Full Oversight projects, in order to discuss the project in detail and to clarify any concerns.

The purpose of this meeting is to provide a forum for all concerned parties to discuss the proposed project, answer questions on the RFP and Design and Construction Criteria Package, CPM schedule, method of compensation, instructions for submitting proposals and other relevant issues. The DB Firms should be instructed to direct all questions after the meeting to the Contract Plans Bureau.

During and after the meeting, it is the responsibility of the Contract Plans Bureau to ensure that each short-listed DB Firm develops their technical proposal with the same information. If a DB Firm receives information from MDT relating to the project prior to the information cutoff date, MDT will ensure that all short-listed DB Firms receive the same information in a timely fashion. The project file will clearly document all communications with any DB Firm regarding the RFP and Design and Construction

Criteria Package by the Contract Plans Bureau.

At the conclusion of the meeting or when it is reasonable to assume that no further changes regarding the RFP and Design and Construction Criteria Package will be required, Contract Plans Bureau, along with the Design-Build Team, will update the criteria as necessary. The updated RFP and Design and Construction Criteria Package will be made available to each member of the TRC prior to evaluation of the technical proposals. Also, should significant changes result from the meeting, the short-listed DB Firms will be provided the updated criteria and any changes occurring in the RFP and Design and Construction Criteria Package. When applicable, FHWA must also approve such changes to the RFP and Design and Construction Criteria Package.

## 3.14 PROPOSALS SUBMITTED BY SHORT-LISTED DB FIRMS

MDT will request proposals from no fewer than three DB Firms. DB Firms will be asked to develop and submit proposals based on the RFP and Design and Construction Criteria Package. Proposals will be segmented into two parts, Technical Proposals and Price Proposals. Technical and Price Proposals will be received at the location and by the date and time noted in the advertisement. Technical and Price Proposals will be submitted in separate packages (with the price proposal sealed) and appropriately labeled.

Price proposals will include all Design-Build package bid forms. The Contract Plans Bureau will send the Technical Proposals to the TRC and hold all sealed Price Proposals until Technical Proposal scores are provided by TRC. If a DB Firm withdraws from consideration after MDT requests a proposal, MDT may continue, if at least two proposals are received.

### (1) Technical Proposals

A Technical Proposal should include a detailed project schedule using CPM (or other techniques as appropriate), preliminary design plans, preliminary specifications, technical reports, calculations, permit requirements, total contract time and other data requested in response to the RFP. The package will indicate clearly that it is the Technical Proposal and will identify clearly the DB Firm's name, project description and any other information required.

### (2) Price Proposals

Price Proposals will include one lump sum cost for all design, construction, and construction engineering and inspection (if CEI services are included) of the proposed project. The package will indicate clearly that it is the Price Proposal and will clearly identify the DB Firm's name, project description and any other required information.

## 3.15 TECHNICAL REVIEW COMMITTEE (TRC) EVALUATES PROPOSALS

The TRC will evaluate each DB Firm's technical proposal based on the rating criteria provided in the RFP. The rating or technical evaluation process is extremely important and should be accomplished using one of two methods. FHWA must be provided one copy of Technical Proposal for Full Oversight projects at the same time to insure consistency with the design criteria specified in the RFP.

Each TRC member is responsible for scoring each DB Firm's Technical Proposal for each evaluation criteria. TRC members may solicit information from other persons to assist them in those areas where they do not possess an appropriate level of expertise. A minimum of three scores are required for each evaluation criteria prior to averaging the scores for the development of a final Technical Proposal score.

The TRC will submit a final Technical Proposal score for each DB Firm to the Contract Plans Bureau and FHWA on Full Oversight projects. During this technical review process, it is recommended that the TRC meet together to discuss their thoughts on each proposal. This is intended to be a structured meeting to discuss concerns and to determine how well each proposal met the criteria. Rating points for each proposal should not be discussed at this meeting. The purpose of the meeting is to give each TRC member a better understanding of the technical merits of each proposal, not to develop a group score.

The Contract Plans Bureau will notify all short-listed DB Firms of the date, time and location of the public opening of the sealed Price Proposals.

The Contract Plans Bureau will publicly open the sealed Price Proposals and divide each DB Firm's price by the score given by the TRC to obtain an adjusted score. The following example shows how the selection formula would work:

| DB Firm | TECHNICAL SCORE | PRICE | ADJUSTED SCORE |
|---|---|---|---|
| A | 90 | $6.7 Million | 74,444 |
| B | 80 | $6.5 Million | 81,250 |
| C | 70 | $6.3 Million | 90,000 |

## 3.16 VALUE OF TIME FACTOR IN THE TECHNICAL EVALUATION FOR ASDB

An Adjusted Score Design Build (ASDB) bid may include a bid adjustment for the value of time. This adjustment will be based on the DB Firm's proposed number of days to complete the project multiplied by a value per day established by MDT (number of days times cost/day = price proposal adjustment [increase]).

This adjustment will be used for selection purposes only and will not affect MDT's liquidated damages schedule or constitute an incentive/disincentive to the contract.

MDT will establish the cost/day value and include it in the RFP package. The DB Firm will determine the contract time necessary to perform all Design-Build functions. Using zero base line, the DB Firm will multiply its contract time by the cost/day contained in the RFP. This value added to the Price Proposal amount will constitute the time-adjusted price. The following example is how this selection process would work using $2,000/day:

| DB Firm | Technical Score | Contract Time (Days) | Time Value (Days x $/day) | Price Proposal | Time Adjusted Price (Time Value + Price Proposal) | Adjusted Score |
|---|---|---|---|---|---|---|
| A | 90 | 300 | $600K | $6.7 M | $7.3 M | 81,111 |
| B | 80 | 250 | $500K | $6.5 M | $7.0 M | 87,500 |
| C | 70 | 400 | $800K | $6.3 M | $7.1 M | 101,428 |

For an ASDB bid, the time-adjusted price amount will be divided by the Technical Proposal score to determine the lowest adjusted score. In the above example, DB Firm A would be awarded the contract under this scenario.

If the value of time factor is used, it is recommended that an incentive/disincentive clause also be included in the DB Contract with a dollar amount per day equal or greater than the value of time factor amount. The incentive/disincentive will create a more balanced approach by helping to eliminate the manipulation of proposed contract time.

## 3.17 STIPENDS FOR UNSUCCESSFUL SHORT-LISTED DB FIRMS

For Design-Build projects when MDT intends to compensate the unsuccessful short-listed DB Firms for submitting a proposal, MDT must enter into a contract with each DB Firm immediately after short-listing. Before the contract is awarded, the Design-Build Engineer will ensure that funds have been obligated and approved by MDT in accordance with the contract funds approval procedure. A contract is required to document the terms and conditions for compensation. On ASDB projects, the unsuccessful short-listed DB Firms may receive compensation (lump sum) for their efforts in preparing a proposal if the proposal is determined to be responsive by the TRC. The intent to compensate and the amount of this compensation will be noted in the RFP package. A stipend is not intended to compensate the DB Firms for the total cost of preparing the bid package. Compensation will be commensurate with the level of effort required to develop a bid proposal. In return, MDT will reserve the right to use any of the concepts or ideas within the technical proposals, as MDT deems appropriate.

## GUIDELINES FOR ESTIMATING STIPEND AMOUNTS FOR DB PROJECTS

| CONTRACT VALUE | ALL PROJECT TYPES | RANGE OF STIPENDS |
|---|---|---|
| < $1M | 0.0030 * Estimate | $0K - $3K |
| $1M - $5M | 0.0020 * Estimate | $2.0K - $10K |
| $5M - $10M | 0.0015 * Estimate | $7.5K - $15K |
| > $10M | 0.0010 * Estimate | $10K + |

Note: Estimate only, actual stipend could vary based on nature of work.

**Examples:**

1. A $6 M roadway reconstruction project would have a recommended stipend of $6, 000,000 x (0.0015) = $9,000.

2. A $3 M new bridge project would have a recommended stipend of $3,000,000 x (0.0020) = $6,000.

This decision will be at the discretion of MDT. The amount and conditions of the stipend must be included in MDT's advertisement. Estimated stipend funds will be included as a separate line item in the obligation of funds for the DB Contract prior to issuance of the RFP. Federal funds may be used to compensate the short-listed DB Firms.

The DB Firms that are not selected should submit an invoice for payment of services on a lump sum basis after the selection/award process is complete. The invoice should include a statement similar to the following: "All work necessary to prepare Technical and Price Proposals in response to MDT's RFP for the subject project". Compensation is intended to be on a pass/fail basis (responsive or non-responsive). If a proposal is deemed to be non-responsive by the TRC, then no compensation will be made.

### 3.18 SELECTION PROCESS BY SELECTION COMMITTEE

A short-list profile will be developed for each short listed DB Firm by the TRC. This information, along with supporting data that the Selection Committee deems appropriate, will be packaged and presented to each Selection Committee member for their review prior to or at the scheduled selection meeting.

Selection consideration factors, applied to key members of the DB Firm, include:

**1. Environmental Protection/Commitments (_____ points)**

Credit will be given for minimizing impacts to the environment during all phases of design/construction and insure that all environmental commitments are honored.

### 2. Maintainability (_____ points)

Credit will be given for a design that minimizes periodic and routine maintenance. The following elements should be considered: access to provide adequate inspections and maintenance, maintenance of navigational system lighting, access to structure's lighting system, and quality of construction materials. Credit will be assigned for exceeding minimum material requirements to enhance durability of structural components.

### 3. Warranty/Contractor Guaranteed (_____ points)

Credit will be given for the extent of the warranty coverage.

### 4. Schedule (_____ points)

Credit will be given for a comprehensive and logical schedule that minimizes contract duration. Proper attention should be provided to the project's critical path elements.

### 5. Coordination (_____ points)

Credit will be given for a coordination plan/effort that includes, as a minimum, coordination with the following groups:

- MDT Management Team
- Community and Businesses
- Permitting/Environmental Agencies
- Utility Owners
- Local Governments

### 6. Quality Management Plan (_____ points)

Credit will be given for a timely, complete and comprehensive quality management plan that incorporates effective peer reviews and includes all phases of the project.

### 7. Maintenance of Traffic (_____ points)

Credit will be given for a Maintenance of Traffic (MOT) scheme that minimizes disruption of roadway traffic. This will include, but not be limited to, minimization of lane closures, lane widths, visual obstructions and significant reductions in speed limits.

### 8. Aesthetics (_____ points)

Aesthetics will be considered in the geometry, economy, and appropriateness of structure type, structure finishes, shapes, proportion and form. Architectural treatments such as tiles, colors and emblems will not be considered as primary aesthetic treatments.

### 9. Design and Geotechnical Services Investigation (_____ points)

Credit will be given for the quality of the following elements:

- Quality and quantity of design resources
- Design coordination and plans preparation schedule
- Construction coordination plan minimizing design changes
- Geotechnical investigation plan
- Structure design

### 10. Construction Engineering Inspection (CEI) (_____ points)

Evaluation of construction engineering and inspection capabilities will be based on the reputation, qualification and experience of the CEI Consultant team assigned to the project. Credit will be given for a comprehensive CEI program managed by qualified, competent and experienced field/construction personnel. Experience in providing CEI services on projects of a comparable nature, size, and complexity and on projects for MDT or other DOTs will be considered in evaluating proposals.

### 11. Construction Methods (_____ points)

Credit will be given for construction methods that minimize impacts to the traveling public and the environment, reduce costs, improves worker safety and minimizes contract duration. Credit will be given for exceeding minimum material requirements to enhance durability of structural components.

### 12. Design-Build Experience (_____ points)

Credit will be given for the DB Firm's experience on similar work and the individual team member's successful design build experience. Consideration will be given to:

- DB Firm leadership and areas of responsibility
- DB Firm internal coordination plan
- DB Firm commitment to and history of providing a quality project, completed on time and within budget

### 13. Landscaping (_____ points)

Credit will be given for the quality of the elements presented, if applicable.

## 3.19 SELECTION COMMITTEE RECOMMENDS AWARD OF ASDB BID

Unless all proposals are rejected, the Selection Committee will approve an award recommendation to the DB Firm with the lowest adjusted score. The Commission will authorize MDT to enter into a contract for the price proposed. In the advertisement and pertinent bid documents, MDT will reserve the right to reject all proposals and waive minor proposal irregularities.

Contract Plans Bureau will post the results and provide notification to each DB Firm submitting a proposal of the award of the project or rejection of all proposals within thirty (30) calendar days of final selection or determination to reject all proposals.

The Contract Plans Bureau, in conjunction with the Selection Committee and TRC, will provide justification for the selection upon request by the non-selected DB Firms and arrange a formal meeting to explain and review technical scores to clarify the non-selection of the DB Firms.

At the time of the award, MDT may negotiate changes for the purpose of clarifying the design criteria and work to be done, provided that the negotiated changes do not affect the selection order. Negotiated changes should be accomplished prior to bids being awarded.

## CHAPTER FOUR

## *LOW BID DESIGN-BUILD (LBDB) BID PROCESS*

As a general rule, the low bid approach should be used on projects where the Design and Construction Criteria Package are concise, clearly defined and innovation or alternatives are not being sought. Projects that are awarded based on the LBDB approach, will not utilize the short-listing process.

### 4.1 PROJECT IDENTIFICATION (Same as for ***ASDB: Section 3.1***)

### 4.2 DEVELOPMENT OF DESIGN AND CONSTRUCTION CRITERIA PACKAGE (Same as for ***ASDB: Section 3.2***)

### 4.3 CONTRACT NUMBER ASSIGNMENT (Same as for ***ASDB: Section 3.3***)

### 4.4 OBLIGATION (Same as for ***ASDB: Section 3.4***)

### 4.5 ADVERTISEMENT (Same as for ***ASDB: Section 3.5***)

If a pre-bid meeting is to be held, the announcement must also provide the date, time, and location of the pre-bid meeting.

### 4.6 PRE-BID MEETING FOR LOW BID DB FIRMS

If the LBDB project is complex, a pre-bid meeting may be held in order to discuss the Design-Build project and clarify any concerns (Same as for ***ASDB: Section 3.13***). This meeting may be waived if the complexity of the project does not warrant such a meeting.

### 4.7 LBDB LETTER OF INTEREST

Any DB Firm interested in being considered for the project must first submit a Letter of Interest (Same as for ***ASDB: Section 3.6***) in order to qualify to submit a bid. DB Firms

qualified by submitting a Letter of Interest should request a copy of the RFP from the name and address identified in the advertisement.

### 4.8 PREPARATION OF REQUEST FOR PROPOSAL (RFP)

(Same as for ***ASDB: Section 3.7, 3.8 and 3.9***)

### 4.9 PROPOSALS SUBMITTED BY LOW BID DB FIRMS

(Same as for ***ASDB: Section 3.14***)

### 4.10 BID OPENING FOR LOW BID DESIGN-BUILD

Under the LBDB process, Contract Plans Bureau will publicly open the Price Proposals on the day, time, and location noted in the advertisement and send the TRC the Technical Proposal of the low-bid DB Firm only.

### 4.11 RESPONSIVENESS OF PROPOSALS

The TRC will review the design concepts and preliminary designs of the lowest bidder proposed in order to assess the responsiveness of the lowest bidder's Technical Proposal compared to the RFP and Design and Construction Criteria Package.

In the event the lowest bidder's Technical Proposal is found to be non-responsive, the TRC will review the next lowest bidder's Technical Proposal to determine its responsiveness (FHWA must concur for Full Oversight projects). A Bid Proposal is considered non-responsive if it does not contain all the required information and level of detail, or is non-compliant with the RFP and Design and Construction Criteria Package. It may be appropriate for the TRC to contact the non-responsive DB Firm to discuss/clarify its concerns prior to moving on to the next lowest bidder. However, once determined that the low bidder is non-responsive, the process will continue until the lowest bidder having a responsive proposal is determined.

The TRC will then notify the Selection Committee of the lowest bidder having a responsive Technical Proposal. Unless all proposals are rejected, the Selection Committee will recommend approval of the bid to the Commission of the DB Firm with the lowest responsive bid. The Commission will authorize MDT to enter into a contract for the price proposed. MDT reserves the right to reject all proposals.

### 4.12 VALUE OF TIME FACTOR FOR LOW BID DESIGN-BUILD

(Same as for ***ASDB: Section 3.16***)

### 4.13 SELECTION COMMITTEE RECOMMENDS AWARD TO DB FIRM WITH THE LOWEST RESPONSIVE BID

Unless all proposals are rejected, the Selection Committee will recommend award to the Commission of the DB Firm with the lowest bid that has a responsive Technical Proposal. MDT will enter into a contract for the price proposed. In the advertisement and pertinent bid documents, MDT will reserve the right to reject all proposals and waive minor proposal irregularities.

Contract Plans Bureau will post the results. Due to the number of potential bidders in the LBDB process, individual notification to each DB Firm may not occur as it does in the ASDB process. Prior to the time of award, MDT may negotiate changes for the purpose of clarifying the design criteria and work to be performed, provided the negotiated changes do not affect the selection order. Any negotiated changes should be accomplished prior to the contract being awarded.

# CHAPTER FIVE

# *DEVELOPMENT OF THE DESIGN AND CONSTRUCTION CRITERIA PACKAGE FOR THE RFP*

## 5.1 DESIGN SERVICES/REQUIREMENTS

The design requirements (criteria) and specifications are essential to ensure that the project is constructed to meet the needs as determined by MDT. The following guidance is provided for various design requirements that should be in the Design and Construction Criteria Package for each project type:

**(1)** Bridge project requirements may include but are not limited to alignment, prescribed typical section elements, design criteria, design guidelines, aesthetic requirements, project schedule, standard detail drawings, subsurface soil data, minimum vertical and horizontal clearance requirements, load rating, hydraulics, scour predictions, roadway approach needs and maintenance.

The Traffic Control Plan specifying MOT requirements, such as the number of lanes to be maintained and the lane closure times, should also be noted.

**(2)** Building project requirements may include but are not limited to building size, net and gross interior space provisions, building systems, material quality standards, allowed budget amount, project schedule, site development requirements, aesthetic requirements, landscaping, electrical service, telephone service, domestic water requirements, sanitary sewage requirements, storm water disposal, parking provisions, ADA requirements, regulatory, environmental and permitting requirements, and maintenance.

**(3)** Roadway project requirements may include but are not limited to alignment, project limits, prescribed typical section elements, design controls and criteria, controlling roadway and traffic design standards, traffic signals, project schedule, drainage, pavement design, signing and pavement marking, traffic control plan design, traffic control plan, bicycle and pedestrian designs, including ADA requirements, lighting, landscaping, controlling access management standards, and maintenance.

**(4)** Traffic systems project requirements may include but are not limited to Intelligent Transportation Systems (ITS) elements involving location of field infrastructure, location of central control center, communication plant, software requirements for traffic management software and operating software, traffic control plan, and maintenance. The Design and Construction Criteria Package will address design, procurement, installation, integration testing, training and warranty.

## 5.2 CONSTRUCTION ENGINEERING AND INSPECTION (CEI) SERVICES/REQUIREMENTS

The criteria must clearly define the CEI services and requirements if these services are to be provided by the DB Firm. Services may include construction inspection, off-site prefabrication, Quality Control Engineering, Quality Assurance Engineering, as-built drawings, surveying and other services as necessary for the specific project.

Requirements may include but are not limited to the type and frequency of reports, submittal of shop drawings, the level of detail and type of documentation for materials used in the construction of the project and other such requirements necessary for the specific project. Requirements will also include the collection and furnishing of information needed for final certification.

If the CEI Consultant is hired by the DB Firm, it is recommended that the CEI Consultant be required to provide a monthly report to MDT that outlines progress made, problems that occurred, corrective actions proposed/implemented and the status of corrective actions. The purpose of this report is to provide MDT with a summary of the CEI Consultant's efforts and to enhance accountability. The CEI Consultant cannot be part of the DB Firm if the project is a Full Oversight project unless specific authorization has been received from FHWA.

## 5.3 CONSTRUCTION SERVICES/REQUIREMENTS

The criteria will reference any applicable MDT specifications, including standard specifications, supplemental specifications or special provisions as deemed appropriate by the Design-Build Team. In addition, it may be necessary to reference local or state building codes, national standards or other specification requirements pertinent to the specific project.

The Design-Build Team should consider whether there are any particular construction processes or techniques that need to be specified in order to satisfactorily construct the project. As a general rule, it is better to describe unique social, environmental and community values desired and let the DB Firm select the construction method/technique.

## 5.4 PERMITS

MDT must determine who will be responsible for permits and how the coordination process will be handled. FHWA holds MDT responsible for all permits on Federal Aid

Projects. The RFP will clearly state when the DB Firm is to be responsible for identifying and obtaining all required permits. A detailed list and explanation of potential environmental related permits is included in Chapter 9, Project Development and Environmental Process, of these Guidelines. Any permit requiring additional permanent right of way or easements must comply with the MDT Right of Way Operations Manual.

The RFP will identify the required permits and easements and the MDT contact that must approve commitments made by the DB Firm on behalf of MDT as a result of obtaining permits.

Known commitments and/or permit requirements, especially those affecting the DB Firm's construction options and costs, should be clearly defined and supplied to the DB Firms prior to preparing technical proposals. Initial resource agency coordination meetings should begin as the RFP and Design and Construction Criteria Package are being developed. This does not alleviate the DB Firm's responsibility to acquire all necessary permits or to modify project permits as necessary. The following are examples of some, but not all, permitting issues/concerns:

- Restrictions for construction access,
- Horizontal and vertical requirements for bridge span,
- Blasting restrictions or requirements for existing bridge removal,
- Special turbidity control requirements,
- Mitigation ratios and special mitigation requirements,
- Other site-specific permitting restrictions that may include time restrictions affecting construction activities,
- Local ordinances, including noise and hours of operation,
- Subdivision permits,
- Building permits.

## 5.5 DESIGN PLANS AND ENGINEERING CALCULATIONS REVIEW

The design criteria will clearly define any documentation (included but not limited to design plans, shop drawings or engineering calculations) that is to be received by MDT. Under Design-Build, these submittals are not for MDT’s approval, but only for verification of compliance with the Design and Construction Criteria Package. The Design and Construction Criteria Package will also clearly state any requirements for packaging submittals and backup information that MDT may desire in order to avoid fragmented submittals. The Design and Construction Criteria Package should also define the shop drawing review (routing) process.

## DESIGN BUILD PROJECTS – PLAN CONTENT REQUIREMENTS

### ROADWAY PLANS

| Item | Required when Applicable to Project Type | Required when Specified | Not Required |
|---|---|---|---|
| Key Sheet | X | | |
| Summary of Pay Items | | | X |
| Drainage Map | | X | |
| Interchange Drainage Map | | X | |
| Typical Section | X | | |
| Summary of Quantities | X[1] | | X[1] |
| Box Culvert Data | X | | |
| Summary of Drainage Structures | | | X |
| Project Layout | X | | |
| Roadway Plan-Profile | X | | |
| Special Profile | X | | |
| Back-of-Sidewalk Profile | | X | |
| Ramp Terminal Details | X | | |
| Intersection Layout/Detail | X | | |
| Drainage Structures | X | | |
| Lateral Ditch Plan-Profile | | X | |
| Lateral Ditch Cross Section | X | | |
| Retention/Detention Ponds | X | | |
| Cross Section Pattern Sheet | X | | |
| Roadway Soil Survey | X | | |
| Cross Sections | X | | |
| Storm Water Pollution Prevention Plan | X | | |
| Traffic Control Plans | X | | |
| Utility Conflicts | X | | |
| Selective Clearing and Grubbing | X | | |
| Miscellaneous Structures Plans | X | | |
| Signing and Pavement Marking Plans | X[2] | | |
| Signalization Plans | X[2] | | |
| Lighting Plans | | X | |
| Landscape Plans | X | | |
| Utility Agreements | X | | |
| Mitigation Plans | | | |

1. Summary Tables are not required when plan details sufficiently describe the work. Summary tables should be used for items of work not typically depicted by plan detail (mail boxes, side drain).
2. Traffic Plans Tabulation of Quantity sheets are not required.

If sufficient data is available, MDT can provide the complete pavement design package as part of the design criteria. If MDT does not provide the pavement design, project specific pavement design criteria will be provided as part of the Design and

Construction Criteria Package to assure a reasonable pavement design is provided by all competing DB Firms. The project specific pavement design criteria will be developed in accordance with MDT Surfacing Design Guidelines. MDT will provide NDT Deflection Data and the DB Firm will calculate the resilient modulus. MDT Surfacing Design Section may recommend the PG binder based on ESAL loading, geographic location and weather extremes and type of project.

## BRIDGE PLANS

| Item | Required when Applicable to Project Type | Required when Specified | Not Required |
|---|---|---|---|
| List of Drawings | X | | |
| Bridge Plan Quantities | X | | |
| Bridge General Layout | X | | |
| Footing Plan | X | | |
| Log of Boring | X | | |
| End Bent or Abutment | X | | |
| Backwall and Footing Details | X | | |
| Wingwall Details | X | | |
| Architectural Details | X | | |
| Intermediate Bents or Piers | X | | |
| Pier Details | X | | |
| Pier Footing Details | X | | |
| Expansion shoe and Bearing Details | X | | |
| Diaphragm Details | X | | |
| Beam End Details | X | | |
| Erection Plan | X | | |
| Girder/Beam Details | X | | |
| Slab Details | X | | |
| Transverse Slab Section | X | | |
| Slab Reinforcement Plan | X | | |
| Girder Elevation Details | X | | |
| Girder Chamber Diagram | X | | |
| Field Splice Details | X | | |
| Superstructure Construction Sequence | X | | |
| Miscellaneous Details | X | | |
| Barrier Details | X | | |
| Pedestrian/Hand Rail Details | | X | |
| Phase Construction Details | | X | |
| Falsework/Forming Plans | X | | |
| Reinforcing Bar List | | X | |
| Detour Plan and Profile | | X | |
| Detour Bridge Details | X | | |
| Retaining Wall Sheets | X | | |
| Standard Drawings | X | | |
| Existing Bridge Sheets | | X | |
| Others as Needed | | | |

## 5.6 UTILITIES

The DB Firm will be responsible for identifying the existence, features and locations of any and all utilities within the limits of construction using a qualified Subsurface Utility Engineering (SUE) firm; for coordinating any required utility relocations or adjustments necessary for satisfactory completion of the contract work; and for all work necessary to otherwise accommodate all utilities within the limits of construction during construction and upon satisfactory completion of the work.

MDT will make available to the DB Firm for inspection, all available existing utility permits and utility relocation information, including 23 CFR, part 645, Subpart A and B, Administrative Rules of Montana and Volume III of the MDT Right of Way Manual. MDT makes no representation as to the completeness or accuracy of such information and the DB Firm relies on the completeness or accuracy of such information at it's own risk.

In case of utility caused delays, the DB Firm will refer to the MDT Standard Specifications.

The DB Firm will be responsible for utility relocation costs as provided by Montana Statutes.

## 5.7 EASEMENTS/RIGHT OF WAY

The Design and Construction Criteria Package should note that the DB Firm is responsible for any uncompensated license agreements required for construction equipment, materials and operations.

Existing right of way must be verified and a determination made by MDT during the Preliminary Engineering phase that the project can be built within the existing right of way. This would include an on-site inspection of the right of way to verify there are no encroachments. Design-Build contracts may be advertised and awarded prior to completion of right of way activities. Construction activities may not begin on the project until title to all right of way and easements necessary for the construction of the project has been vested in the State or a local government entity and a right of way certification for construction of the project has been issued. (See Chapter 8, Right of Way Issues on Design-Build Projects.)

## 5.8 EXISTING PROJECT FEATURES OR SYSTEMS

The Design and Construction Criteria Package will include a section that specifies the responsibility for demolition and disposal or retainage of existing features or systems that are no longer necessary to the project.

## 5.9 QUALITY CONTROL (QC) REQUIREMENTS

The Design and Construction Criteria Package will address any QC requirements that the DB Firm must follow in addition to those already in the referenced specifications, policies and procedures that will assure quality products (plans, materials and

construction). The criteria should also note any standard QC practices that do not apply, such as the designer submitting phase plans to MDT for review.

## 5.10 INDEPENDENT ASSURANCE (IA)

Whether MDT hires the CEI Consultant or the CEI Consultant is part of the DB Firm's responsibilities, MDT will continue with its Independent Assurance (IA) program. In addition, MDT and FHWA have the right to review records and conduct tests at any time in order to ensure quality products and services are being provided.

## 5.11 SURVEY REQUIREMENTS

The Design and Construction Criteria Package will specify any survey information required by MDT and notify the DB Firms of existing survey information that is available.

It may be necessary for MDT to perform some survey work in the preparation of the Design and Construction Criteria Package. In any event, MDT must determine who will provide the survey control for layout, the layout itself and determine if it is to be tied to the State Plane Coordinate System. All survey work will be performed by a Montana Licensed Surveyor and will adhere to the requirements of MDT's Survey Manual and Montana Statute.

## 5.12 FINAL DOCUMENTS

The Design and Construction Criteria Package will clearly define the final documents required by MDT from the DB Firm upon completion of the project. These documents should include: as-built final plans (100% automated, including sheet files and geometric data files), computer files containing the as-built design plans, engineering reports, shop drawings, test results, documentation, daily reports, quantities list, warranties for equipment installed on the project and certificates of occupancy, if required.

## 5.13 STAFFING REQUIREMENTS

The Design and Construction Criteria Package will outline the minimum training and experience requirements for any professional personnel and/or construction personnel deemed appropriate by MDT and/or required by regulatory agencies.

## 5.14 GEOTECHNICAL REQUIREMENTS

The Design and Construction Criteria Package will specify any geotechnical information or reports required by MDT. MDT may perform some preliminary geotechnical work in the preparation of the Design and Construction Criteria Package. MDT may conduct other geotechnical investigations in order to save the short-listed DB Firms the time and expense. MDT will provide copies of any existing geotechnical information that is available to all DB Firms invited to submit a proposal.

## 5.15 ITEMS TO BE FURNISHED BY MDT

The Design and Construction Criteria Package will include a section that details any items or services to be furnished by MDT. This section should include any information (data, reports), support functions (computer services), materials, equipment, testing devices, or other items that would affect the bid or technical approach. Such information might also include survey data, geotechnical information, bridge hydraulic reports, existing plans (if available), utility agreements and right of way plans.

As a general rule, MDT should provide a typical section package as a part of the design criteria. MDT must also determine if MDT will provide the pavement borings and pavement design or if the DB Firm will perform this work.

The following are examples of other information that might be necessary for MDT to provide in order to clarify Design and Construction Criteria Package:

- Preliminary geotechnical survey including bridge borings, wall borings and roadway borings within the limits of the possible alignments.

- Site specific permit surveys potentially affecting or restricting the DB Firm's allowable construction methods, schedule and cost. Examples:

    - Survey showing limits of contaminated sites within the right of way that potentially affect excavations such as building bridge bents and drainage structures. Verbiage requiring special conditions such as coordination with a specialty contractor should be included in the contract.

    - Limits of jurisdictional wetlands within the right of way and on adjacent properties. Also, any permit implications affecting construction access in these areas needs to be addressed.

    - Endangered species survey.

    - Other environmental related commitments.

    - Asbestos survey on building projects when existing buildings are modified or demolished.

    - Lead and other heavy metals paint survey.

    - Permits

## 5.16 ISSUE ESCALATION/RESOLUTION

The Design and Construction Criteria Package will include an issue escalation matrix or process that clearly defines the process for addressing questions or disagreements that may arise. This process should state the chain of command within MDT and require the DB Firm to provide a similar list of people in responsible charge. For MDT, the

escalation should begin with the Construction Project Manager and continue through the District Construction Engineer, MDT Construction Engineer and MDT Chief Engineer. Consideration should be given to the level that issue escalation begins, depending on the type of issue.

Typically, issues should be resolved at the lowest possible level. Each level of escalation should also include a time frame for resolving the conflict.

Construction issues that arise will be resolved through the following process:

- If the resolution does not change the original intent of the Technical Proposal/RFP, then the Engineer of Record (EOR) or Architect who works for the DB Firm will be responsible for developing the design solution to the construction problem and the CEI Consultant will be responsible for review and concurrence. If the CEI Consultant has concerns, then the relevant District Office will be involved through the PM.
- If the resolution alters the original intent of the Technical Proposal/RFP, then the EOR or Architect will develop the proposed solution and submit to FHWA for approval on Full Oversight projects and to MDT through the PM for review and approval with a copy provided to the CEI Consultant.

### 5.17 WARRANTY/CONTRACTOR GUARANTEED

The Design and Construction Criteria Package will generally include a provision for a project warranty/Contractor guaranteed with a specified number of years and the details as to what is to be covered. As a general rule, routine maintenance is not intended to be covered by a warranty/Contractor guaranteed. If, during the warranty/Contractor guaranteed period, any encroachments to right of way occur, MDT will be responsible. Standard warranty/Contractor guaranteed forms or clauses may need to be modified to fit project specific needs. Building projects should have a warranty of no less than 1 year.

Any warranties/Contractor guaranteed that are developed for Federal Aid Full Oversight projects will be tied to specific features or products. The warranty/Contractor guaranteed will be tied to warranty bond/guarantee criteria to ensure that the DB Firm undertakes any corrective work necessary during the life of the warranty/Contractor guaranteed. All warranty/Contractor guaranteed language in the RFP used in construction contracts for Full Oversight projects should be approved by the FHWA.

## CHAPTER SIX

## *OBLIGATION OF FUNDS*

### 6.1 OBLIGATION FOR STIPENDS

Short-listed DB Firms not selected may receive a stipend (lump sum) for their efforts, if the TRC determines their proposal is responsive. These DB Firms will submit an

invoice on a lump sum basis after the award process is complete. The invoice amount should be calculated based on the table shown in **Section 3.17**. Funds for stipends will be included in the DB Contract obligation.

## 6.2 OBLIGATION FOR DB CONTRACT

MDT's Fiscal Programming Bureau will obtain three separate programming obligations for Design-Build projects. First will be an obligation for the estimated cost of preliminary engineering and environmental work required to develop the RFP and Design and Construction Criteria Package. The second obligation is for right of way work, if required. The third obligation is for the DB Contract and will be obtain after completion of the RFP and Design and Construction Criteria Package and will be based on the estimated cost of all activities necessary to complete the project after award of the contract, including payment of any stipends. Program obligations may be modified to reflect actual costs for right of way; after the DB Contract is award and the total cost is known; and the final modification to reconcile the authorized obligation with the final expenditures.

## 6.3 TECHNICAL GUIDELINES

On state and Federally funded projects, when CEI services are performed by CEI Consultants that are not members of the DB Firm and not included in the DB contract, a separate contract will be advertised and awarded by MDT for CEI services. MDT will select a CEI services Consultant in accordance with the MDT Consultant Services Procedures Manual. For Full Oversight projects, when the CEI services are proposed for inclusion in the DB Contract, FHWA must review and approve CEI services to be performed by the DB Firm.

Once a project is identified as a DB project, it should be decided who is going to perform the services necessary to bring the project to completion. These services include utilities/railroad, permits, geotechnical investigations, survey/mapping and CEI. Depending on the project, some or all of these services may be performed by MDT prior to award of the DB Contract.

## 6.4 COMPENSATION TO SHORT-LISTED DB FIRMS

On an ASDB project when MDT intends to compensate the short-listed DB Firms for submitting a responsive proposal, MDT must enter into a contract with each DB Firm after the short-listing. A contract is required to document the terms and conditions of compensation (stipend). The intent is to compensate the amount that is noted in the RFP package that is based on the guideline formulas outlined in **Section 3.17**. The amount is not intended to compensate the DB Firms for the total cost of preparing the bid package.

# CHAPTER SEVEN

# *FEDERAL AID AUTHORIZATION FOR DESIGN-BUILD PROJECTS*

The following instructions cover the planning, authorization and closeout of Federal funds allocated to DB projects. DB projects are authorized under the Special Experimental Project (SEP) 14 approved plan. This annually approved plan governs federal participation in DB projects.

Federal Aid authorization on Design-Build projects is also subject to provisions of the Partnership Agreement executed on January 9, 2002 between FHWA and MDT. This agreement identifies types of projects and functions subject to oversight by FHWA and those projects and functions delegated to MDT.

FHWA will perform the following review and approval functions on Federal Aid Full Oversight DB projects, if applicable: Concept/Development Documents such as Preliminary field Review, Scope of Work or Plan-In-Hand Reports; Pavement Surfacing Designs; Final PS&E; Design Exceptions; Civil Rights and DBE Programs; Utility and Railroad Agreements; Concurrence in Award; Value Engineering Proposals; Time Extensions; Contract Change Orders; Contract Claims; Innovative Contracting Procedures; Standard and Supplemental Specifications and Detailed Drawings; and Final Acceptance.

## 7.1 PLANNING FOR USE OF FEDERAL AID FUNDS ON DB PROJECTS

The scheduling of the obligation of Federal Aid funds on DB projects is important from the following perspectives:

A. MDT plans for the obligation of Federal Aid funds apportioned and allocated to Montana using the MDT planning process and development of the State Transportation Improvement Plan (STIP).

B. Unlike typical design/bid/build construction that uses activities/events pertaining to the letting schedule, DB projects must be authorized before the RFP and Design and Construction Criteria Package is released for bids and after FHWA approval of the RFP and Design and Construction Criteria Package. FHWA approval, fund authorization and distribution of the RFP and Design and Construction Criteria Package occur before receipt of bid proposals.

C. The RFP and Design and Construction Criteria Package for Full Oversight projects (See Partnership Agreement) must be approved by the FHWA Division Office. The FHWA Division Office requests at least two weeks to review the RFP and Design and Construction Criteria Package before granting their approval. Since several draft submittals and re-submittals may

occur, the authorization request is only processed after final written package approval.

D. These package approvals are necessary for FHWA participation in the project. The Design-Build project authorization request should be processed immediately upon notice of receipt of package approval. NEPA documentation must also be completed prior to issuing the RFP and Design and Construction Criteria Package. After receipt of FHWA authorization approval, the RFP and Design and Construction Criteria Package can be distributed.

## 7.2 PREPARATION OF REQUEST FOR AUTHORIZATION

Since the need for additional right of way must be determined and the environmental documentation completed before the RFP and Design and Construction Criteria Package is approved, these activities normally will be authorized with Federal funds in advance of the Design-Build contract authorization. MDT's Preliminary Engineering (PE) work should serve as the basis for the original federal project authorization, followed by a R/W services authorization, if required.

The sequence of federal authorizations is as follows:

1. PE advance activities are performed by MDT
2. Authorization R/W, if required
3. Authorization for Design-Build Contract.
4. The Federal Aid program authorization previously established will need to be modified after the contract is awarded. Generally, these contract price modifications should occur following DB contract award.
5. Final program authorization modification for project closeout, if needed to balance authorization to final expenditures.

## 7.3 DOCUMENTATION REQUIREMENTS TO SUPPORT DESIGN-BUILD FEDERAL AUTHORIZATIONS

The form of documentation requirements for Design-Build is different than typical design/bid/build construction projects. Design-Build authorizations with Federal funds, whether Full Oversight or Non-Full Oversight, should be supported by:

1. R/W clear certification prior to start of construction.
2. Written FHWA and/or MDT approval of the RFP and Design and Construction Criteria Package.
3. Electronic signatures from FHWA authorizing funds for the project

The RFP and Design and Construction Criteria Package documentation should affirm if other checklist items, such as utilities, permits and NEPA status are complete or when they will be completed.

## 7.4 CLOSING DESIGN-BUILD PROJECTS

From a Federal Aid funding perspective, closing DB projects is not expected to be dissimilar from typical design/bid/build construction project closeout. The final completion stage will be initiated by MDT based on an executed Certificate of Completion. The DB Firm will be responsible for close out of all permits.

The MDT Project Manager must provide the Certificate of Completion and the contract time sheet to the Construction Administration Services Bureau (CAS) verifying completion of the project. The CAS Bureau will review the costs and prepare the final federal program authorization modification. The CAS Bureau requests final acceptance from FHWA. After FHWA acceptance, the CAS Bureau, in conjunction with the Financial Management Bureau, prepares the final voucher for submittal to FHWA.

# CHAPTER EIGHT

# *RIGHT OF WAY ISSUES ON DESIGN-BUILD PROJECTS*

## 8.1 GENERAL

Design-Build contracts may be advertised and awarded prior to right of way activities being completed. Construction activities may not begin on any portion of DB projects until title to all necessary right of way and easements required for the construction of the project has been vested in the State or a local government entity and a right of way certification has been issued for construction of the project.

## 8.2 COMPLIANCE WITH EXISTING REQUIREMENTS

All existing laws, rules, regulations and procedures as detailed in the MDT Right of Way Operations Manual apply to the acquisition of right of way under the design-build process.

The acquisition of right of way is a complex and highly regulated activity. Property owner rights under both Federal and State law may not be violated. Contact with property owners should be limited to persons fully knowledgeable in Federal and State requirements for the acquisition of property for transportation purposes under the threat of eminent domain. Any discussion of price for the acquisition of private property with the owner of that property prior to establishment of just compensation by MDT may result in the entire project being deemed ineligible for Federal funding. The RFP must contain a requirement that all DB Firms who intend to submit proposals on the Design-Build project are restricted from discussing right of way acquisition with owners of private property potentially to be acquired by MDT for the project. There is no prohibition against DB Firms acquiring property for borrow pits or material sites or acquiring DB Firm leases, since these properties would not be incorporated into the project and title will not be held by MDT.

Any person or entity that acquires real estate within the project limits after the project becomes federalized will be disqualified from bidding on the design-build project. A federalized project is a project with federal fund participation in any project phase. For purposes of this guideline, the term "federalized" includes those projects that are proposed for Federal funding in MDT's tentative work program or in the State Transportation Improvement Plan (STIP).

## 8.3 RIGHT OF WAY PLANS, TITLE COMMITMENTS AND DEEDS

Decisions regarding obtaining right of way plans, legal descriptions, title commitments and deeds must be made during development of the RFP and Design and Construction Criteria Package for the DB project.

**8.3.1** Right of way plans, legal descriptions and deeds may be obtained either as part of the DB Contract or through a separate right of way services contract with MDT. It is strongly recommended that the preparation of right of way plans, legal descriptions and deeds be handled by the DB Firm in order to optimize schedule coordination. Right of way plans, legal descriptions and deeds must comply with the MDT Right of Way Operations Manual.

**8.3.2** Title searches may be obtained either as part of the DB contract or through a consultant under separate contract with MDT. A decision must be made on how title commitments will be obtained, either by the DB Firm as part of the DB Contract or by MDT.

**8.3.3** Preparation of title commitments is a legal service and must be performed under the direction of an attorney. The only exception to this rule is if title insurance is purchased. In that event, the documents would be prepared and the closing would be handled by the title company issuing the title insurance policy. If the DB Firm will be responsible for providing the deeds, a title binder must be provided on all parcels and title insurance provided on all parcels acquired through closings. The purchase of title insurance is required. Title commitments will be paid at the promulgated rate established by MDT. For those parcels that do not proceed to closing, MDT will pay a flat cancellation fee to be specified in the DB Contract. MDT will estimate the cost of title insurance using the most recent cost estimate and set promulgated rates. The RFP will include the estimated amount for title commitments that will be included in the DB Firm's price proposal. The DB Firm must include in its bid, the flat rate cancellation fee to be paid for those parcels that do not proceed to closing. If the actual cost of title insurance provided on parcels which proceed to closing plus the cancellation fees for those parcels which do not proceed to closing exceeds the amount of the estimate, MDT will reimburse the DB Firm the difference. If actual costs plus cancellation fees are below the amount of the estimate, the DB Firm will only be entitled to be paid up to the amount of the actual costs.

## 8.4 RIGHT OF WAY SERVICES

A decision regarding how right of way services will be provided will need to be made during the Preliminary Engineering phase of the DB project. Right of way services may

be included as part of a DB contract. Right of way services may also be provided through a separate right of way consultant contract with MDT.

**8.4.1 Funding Issues.** Since the need for additional right of way must be determined and the environmental documentation completed before the RFP and Design and Construction Criteria Package is approved, these activities normally will be authorized with Federal funds in advance of the DB Contract authorization. MDT's Preliminary Engineering (PE) work should serve as the basis for the original Federal project authorization, followed by a R/W services authorization, if required.

**8.4.2 Professional Services.** Right of Way services fall mainly in the category of professional services and consultants must be qualified to complete the following types of work:

**a. Appraisal Services.** This work includes but is not limited to cost estimating, preparation of appraisals and appraisal review. If appraisal services are included in the DB Contract, the appraiser and the reviewer may not be from the same appraisal firm.

**b. Acquisition, Negotiation and Order of Taking.** This work includes but is not limited to verifying title work, conducting negotiations for the acquisition of property, arranging land owner payments and preparing condemnation documents as outlined in the MDT Right of Way Operations Manual.

**c. Acquisition Relocation Assistance.** This work includes but is not limited to relocation planning and providing relocation assistance services to displaced persons, businesses, farm and ranch operations or non-profit organizations.

**d. Right of Way Clearing and Leasing.** This work includes but is not limited to preparation of inventories, property inspections, conducting negotiations for short-term leases prior to construction of a project, and preparing, obtaining, managing, and reviewing contracts for consultant and contract services related to asbestos and demolition services.

**8.4.3 Legal Services.** Legal services for right of way work are not part of an MDT DB Contract.

**8.4.4 Other Right of Way Services.** If asbestos services are included in a DB Contract, these services must be performed by companies with proper licenses and certifications. Asbestos surveys and asbestos abatement may not be performed by the same consultant/contractor. Asbestos surveys, O&M plans and abatement specifications must be reviewed and approved by an MDT employee or a consultant with a current EPA certification as an asbestos building inspector and/or management planner, as appropriate. This consultant may not be from the same firm as the consultant who prepared the documents or the contractor who will abate the asbestos. At the time a DB contract is advertised, a determination will not have been made as to whether asbestos abatement is required on any buildings. This determination cannot be made until such time as the property is acquired and vacated. Therefore, if asbestos

abatement services are to be included in the DB Contract, MDT will estimate the amount and cost of abatement necessary on the project. The RFP will identify the estimated cost for abatement services. This estimated amount will be included in the contract price, with a provision that if actual costs exceed the amount of the estimate, MDT will reimburse the DB Firm the difference and if actual costs are below the amount of the estimate, the DB Firm will only be entitled to be paid up to the amount of the actual costs.

## 8.5 FEDERAL AUTHORIZATION

Design-Build Contracts may be advertised and awarded prior to completion of right of way activities. Construction activities may not begin on any portion of a project until title to all right of way and easements necessary for construction of the project has been vested in the State or a local government entity and a right of way certification has been issued for construction of the project.

On Federal Aid projects, Federal authorization is required prior to beginning any right of way activities. For those projects that include right of way services in the DB Contract, authorization for right of way services may be obtained at the same time as the authorization for the DB Contract as long as MDT has controls established by contract to preclude the start of negotiations prior to environmental approval (NEPA). Right of way plans, title commitments and legal descriptions must also be complete prior to the start of negotiations (see ***Section 8.9.1***).

**8.5.1 Right of Way Land.** Right of way landowner payments, fees and costs, and relocation assistance payments may be authorized separate from the DB Contract. MDT's Preliminary Engineering (PE) work should serve as the basis for the original Federal project authorization, followed by a R/W services authorization, if required.

**8.5.2 Right of Way Support.** Authorization of right of way consultant support services for acquisition/relocation and other support services (appraisals, demolition, asbestos survey, asbestos abatement, MDT expert witnesses) will depend upon how right of way services are to be provided and how the project is programmed.

## 8.6 RESPONSIBILITIES RETAINED BY MDT

The following responsibilities must be retained by MDT and cannot be included in any contract: approval of just compensation; approval of settlements for the acquisition of real estate, either pre-litigation or during litigation; final MDT acceptance of purchase agreements; approval of title policy exceptions; approval of relocation assistance payments; legal services; and right of way certification.

Approval of the control survey, right of way plans and other documents associated with right of way mapping will be in conformance with existing MDT procedures.

## 8.7 RIGHT OF WAY CERTIFICATION

Prior to advertisement, existing right of way must be verified and a determination made whether the project can be built within the existing right of way. This will include an on site inspection of the right of way to verify there are no encroachments. All projects require a certification of right of way prior to advertisement. This certification, signed by MDT, may be a right of way certification for construction. The certification for construction will state either no additional right of way is required for the project or additional right of way is required for the project and all right of way activities have been completed in accordance with applicable Federal and State regulations.

## 8.8 RIGHT OF WAY PROJECT OVERSIGHT

**8.8.1 Right of Way Project Manager**. MDT will designate a Right of Way Project Manager who will serve as the contact and coordination point between the Right of Way Bureau, MDT's Construction Project Manager and the DB Firm. On DB projects with right of way services contracted directly by MDT, the Right of Way Project Manager will serve as contact and coordination point with the right of way Consultant. The Right of Way Project Manager is responsible for management and oversight of the right of way project for MDT.

**8.8.2 Preliminary Field Review.** The Right of Way Project Manager must be included in the preliminary field review of the project.

**8.8.3 Quality Control Checkpoints.** MDT has certain responsibilities that cannot be delegated to a Consultant or the DB Firm. These areas of retained responsibility provide the basic quality control checkpoints for MDT oversight of the right of way activities. They will require attention and precise coordination to assure proper delivery of the right of way services.

a. **Setting Just Compensation.** In all cases, MDT must approve the amount of just compensation prior to offers to purchase being made to property owners.

b. **Approval of Settlements.** Pre-litigation or litigated settlements for real estate and/or owner's attorney fees and costs must be submitted to MDT for approval. Pre-litigation settlements cannot be closed until MDT has approved acceptance.

c. **Relocation Assistance Approvals.** MDT must review and approve all project needs assessments, all last resort housing eligibility determinations prior to offering to displaced persons, and all relocation assistance claims prior to making any payments.

d. **Eminent Domain Legal Services.** When a settlement cannot be reached through pre-litigation negotiations, MDT will provide legal services. When the MDT Consultant or DB Firm Consultant (when right of way services are included in the DB Contract) requests that a parcel be placed in suit, MDT

must determine that all reasonable efforts to negotiate a pre-litigated settlement have been exhausted. Precise coordination between the MDT Right of Way Project Manager, MDT Legal Services, MDT's Consultant and the DB Firm Consultant is essential.

e. **Certification of Right of Way for Construction**. When the DB Firm requests right of way certification for the project in order for construction activities to begin (when right of way services are included in the DB Contract), MDT must perform a field review of the area subject to the certification prior to granting certification.

Additionally, MDT must ensure that the certification meets the requirements of a certification for construction, as described in the MDT Right of Way Operations Manual in the areas of acquisition and relocation assistance. If asbestos survey, asbestos abatement and demolition services are not part of the DB Contract, then the right of way certification must also meet the requirements for a certification for construction in the property management area.

**8.8.4 Quality Control/Quality Assurance Plan**. A Right of Way Quality Control/Quality Assurance Plan is required to be part of the DB Contract. The MDT Right of Way Project Manager will use the periodic reports generated by the DB Firm's Consultant in accordance with the QC/QA plan to monitor quality of the right of way activities. Additionally, the MDT Right of Way Project Manager may establish key points or activities to periodically review during the delivery of the right of way services for the project, in order to further monitor the quality of the right of way services.

Examples of key activities recommended for periodic review by the MDT Right of Way Project Manager are: notice delivery; content of contacts with property owners, business owners, and displaces; replacement housing payment (RHP) calculations; and selection of comparable replacement properties.

## 8.9 CONTRACT REQUIREMENTS

DB Contracts proposed for projects needing right of way will require certain contract provisions.

**8.9.1 Notice to Commence Right of Way Acquisition.** Whether right of way services are included in the DB Contract or provided by MDT, MDT must issue a Notice to Commence Right of Way Acquisition prior to any offer being made to acquire right of way. Environmental approval (NEPA) and completion of right of way plans, title commitments and legal descriptions are required before the notice to commence may be issued.

**8.9.2 Notice to Commence Construction Activities.** On all DB contracts that require additional right of way, MDT must issue a Notice to Commence Construction Activities prior to the start of any construction activities on the project or any portion thereof. This requirement is applicable whether the right of way services are included in the DB Contract or will be handled separately by MDT. The notice to commence may not be

issued until such time as the right of way necessary to support those construction activities is acquired and a right of way certification for construction is issued.

**8.9.3 Compliance with Right of Way Operations Manual**. There must be a provision in the DB Contract that requires compliance with MDT's Right of Way Operations Manual for all right of way activities; with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; and with 23 CFR 710, and with 49 CFR 24.

**8.9.4 Quality Control/Quality Assurance Plan**. A Right of Way Quality Control/Quality Assurance Plan is required to be part of the DB Contract for those DB projects that include right of way services. The QC/QA plan must provide details of the DB Firm's plan to control, monitor, report on and assure the quality of the delivery of the right of way services.

## 8.10 SCOPE REQUIREMENTS

For DB projects with right of way services included, the MDT Right of Way Bureau must be involved in developing the scope of work for right of way services. If feasible, it is recommended that the scope of work be developed using existing MDT right of way contracts for such services as a basis. The delivery of right of way services involves many complex activities and the scope must clearly defined the activities in order to avoid potential contract disputes and delays in project schedules.

## 8.11 SCHEDULING

Due to the complexities involved in the right of way process and the necessity for MDT involvement at various stages in that process, scheduling is a very important issue and must be carefully addressed in the DB Contract (when right of way services are included) to ensure reasonable times are provided for both the DB Firm and MDT to fulfill their obligations under the contract. Since the acquisition of right of way may depend on court action and unforeseen circumstances that may arise, it is recommended that the DB Contract include a provision for assigning the risk for project delays due to right of way issues. This section refers to provisions that should be incorporated into the DB contract (when right of way services are included) and is not intended to include or provide the contractual language. MDT Legal Services should draft the proper contractual language at the time the DB Contract is prepared.

## 8.12 DB FIRM LEASES

On certain construction projects, the DB Firm may determine it is in its best interest to obtain short-term leases (sometimes referred to as contractor easements) for the sole purpose of DB Firm use, such as areas for storage of equipment. Such leases may not be used for property incorporated into the construction of the project. These leases are negotiated directly between the DB Firm and the property owner and do not involve MDT. They may be acquired at any time during the project.

# CHAPTER NINE

# *PROJECT DEVELOPMENT AND ENVIRONMENTAL PROCESS*

## 9.1 ENVIRONMENTAL PROCESS

All projects competed by MDT are required to be in compliance with the National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA). This compliance extends from the design phase through the construction phase and into maintenance of a project after construction is completed. NEPA/MEPA regulations are the basis for protection of the environment. They establish the policy, goals and provide means to carry out the policies. The regulations instruct MDT on methods to be used to comply with the procedures and achieve the goals. These procedures ensure that environmental information is available to public officials and citizens before decisions are made and before action is taken related to highway construction projects. These documents outline commitments made, conceptual design, avoidance measures, mitigation measures and other items that may be of public interest. The project design, construction and maintenance must comply with information contained in the environmental documents.

On Federal Aid projects, usually FHWA serves as the lead federal agency for compliance with the NEPA and MDT serves as the lead state agency.

## 9.2 COMMITMENTS

The DB Firm will be responsible for complying with commitments set forth in the NEPA/MEPA document for the duration of design and construction of the project.

## 9.3 PERMITS

Construction activities are regulated by environmental rules and regulations that are administered by federal, state and local agencies. Environmental permits are required from one or more regulatory agencies for most land alterations such as addition of impervious surfaces, construction, alteration or abandonment of storm water management facilities and wetlands or surface water impacts. The time at which these permits can be obtained vary with the type of project, its impacts and the requirements of a specific resource agency. The acquisition of permits can result in having to re-address NEPA issues during design, so it is very important to prepare a complete and thorough document during the Preliminary Engineering phase and before preparation of the RFP and Design and Construction Criteria Package.

The DB Firm will be responsible for obtaining permit authorizations required for permanent and temporary project facilities.

The following permits may be required, depending on the type of project and potential impacts to various resources:

a. Water Quality Permits

- Federal Clean Water Act (404 Permit) – There are two types of permits, Nationwide and Individual. Nationwide permit authorizations require at least 45 calendar days to obtain approval. Individual permits require at least 120 calendar days to obtain approval. This permit is required when placing fill material in waters of the United States. This includes placement of fill material in beds or banks of a drainage, below the ordinary high water elevation of a stream or river or within a designated wetland. This permit authorization is obtained from the U.S. Army Corps of Engineers.
- Federal Rivers and Harbors Act (Section 10 Permit) – This permit is required when working on, over or under water classified in Section 10. In Montana, the Missouri River, Yellowstone River and the Kootenai River are classified as Section 10 waters. The DB Firm should coordinate with MDT Environmental Services to identify specific locations along these rivers. This permit authorization is obtained from the U.S. Army Corps of Engineers.
- Stream Protection Act 124 – This permit authorization is obtained from Montana Fish, Wildlife and Parks. It is required for work that may affect the natural existing shape and form of any stream or its banks or tributaries.
- Short-Term Water Quality Standard for Turbidity (DEQ 318) – This permit authorization is obtained from the Montana Department of Environmental Quality. It is required for any construction activity that will cause short-term or temporary violations of State surface water quality standards for turbidity.
- Montana Pollutant Discharge Elimination System Permit (MPDES Permit) for Construction Dewatering – This permit authorization is obtained from the Montana Department of Environmental Quality. It is required when discharging construction water into State surface waters.
- Montana Pollutant Discharge Elimination System Permit (MPDES Permit) for Storm Water – This permit authorization is obtained from the Montana Department of Environmental Quality. It is required when there is more than one acre of disturbed ground that could result in storm water runoff discharging into State surface waters.

b. Floodplain Development Permit – this permit is obtained from the Local Floodplain Administrator. It is required if planning new construction within a designated 100-year floodplain.

c. Montana Land-Use License or Easement on Navigable Waters – This license or easement is required when a project is on lands below the low water mark elevation of State navigable waters. The license or easement is obtained from the Montana Department of Natural Resources and Conservation.

d. Other – Other permits or authorizations may be required, depending on the type of project. For specific requirements or unusual conditions, the DB Firm should contact MDT Environmental Services. Other types of permits may include:

- UST Removal
- Hazardous Waste Disposal
- Water Rights

In the interest of shortening the permit application and approval period, the following methods will be proposed to the various resource agencies for Design-Build projects:

1. MDT will coordinate with the resource agencies and keep them involved in the decision-making during development of the Preliminary Engineering, RFP and Design and Construction Criteria Package. Have one-on-one periodic meetings with the resource agencies to obtain "preliminary" commitments in writing during development of the Preliminary Engineering, RFP and Design and Construction Criteria Package to help expedite the permit application and approval process after award of the DB Contract and start of design and construction.

2. MDT may perform enough preliminary engineering work early to obtain permits during development of the Preliminary Engineering, RFP and Design and Construction Criteria Package instead of having to apply for all permits after award of the DB Contract. This would eliminate part of the permitting scope of work from the DB Contract, but would require additional MDT resources. Prior written concurrence should be obtained from the resource agencies if this procedure is to be utilized.

3. The DB Firm should identify construction activities that can begin before final permits are received. This would enable the DB Firm to start design for project features that do not require permits. The DB Firm could start working in those areas while work continues on other design and permit application activities.

## 9.4 REEVALUATIONS

After award of the DB Contract, if the DB Firm proposes major design changes that result in construction activities outside the environmentally cleared "footprint", invalidates previous commitments, or results in a major change of project scope from that identified in the approved environmental document, a written reevaluation may be required. The DB Firm will be responsible for preparing and obtaining approval of any reevaluation resulting from the proposed change and the time required for agency approval. Prior to performing the reevaluation, the DB Firm will coordinate with MDT and the impacted resource agencies to determine if the proposed design changes warrant a reevaluation. The DB Firm will be responsible for conducting any required additional environmental studies and completing the documentation for the environmental reevaluation. For Full Oversight, MDT will obtain FHWA approval of the NEPA reevaluation before the DB Firm can proceed with the proposed design change.

# CHAPTER TEN

# *GEOTECHNICAL (SOILS AND FOUNDATIONS) PROCESS*

## 10.1 DESIGN-BUILD PROJECTS

DB projects are handled differently than the typical design/bid/build projects. For a DB project, the DB Firm takes on many of the responsibilities and control normally provided by MDT or its representatives. This requires a change in the approach to the project by the various groups involved. For a DB project to work properly, this change in approach must happen.

## 10.2 RESPONSIBILITIES

The responsibilities between MDT's Geotechnical Engineer and the DB Firm can be broken down as follows.

### 10.2.1 Planning and Development Phase

MDT's Geotechnical Engineer – Gathers all readily available existing data on the conditions at the site. Helps prepare the RFP and Design and Construction Criteria Package including any geotechnical limitations/requirements and construction requirements for the project. Remember, if it is not written down in the RFP or Design and Construction Criteria Package, it is not a requirement to the DB Firm.

### 10.2.2 Technical Proposals and Bidding Phase

a. MDT's Geotechnical Engineer – Provides any existing geotechical information available for the project site. Any geotechnical investigations performed by MDT prior to bidding are for information only. Answers questions from the prospective DB Firms through the Contract Plans Bureau.
b. DB Firm – Reviews geotechnical information provided by MDT and performs any additional geotechnical investigations and data analysis required to make a determination of the appropriate design and construction method based on the DB Firm's approach/equipment. Submits Technical and Price Proposal.

### 10.2.3 Design/Construction Phase

a. MDT's Geotechnical Engineer – Verifies design and construction are in compliance with the contract documents by providing Independent Quality Assurance (IA) Engineering.
b. DB Firm – Meets the requirements set forth in the contract documents. The DB Firm:

    1) Gathers additional geotechnical data and testing such as borings and/or load tests, if required.
    2) Continues with the design process.

3) Constructs the project and performs Quality Control Engineering and Quality Assurance Engineering, if included in the DB Contract.

## 10.3 PRESENTATION OF GEOTECHNICAL DATA

The geotechnical investigations performed by the DB Firm for DB projects must be handled differently from the normal design/bid/build project. Geotechnical investigations required for design and analysis of data will be performed by the DB Firm.

Geotechnical investigations performed by the DB Firm will be compiled in a format that presents the work that has been performed and the data analyzed. The data is typically compiled in a geotechnical report. The purpose of the geotechnical report is to present the data collected in a clear manner. The format and contents of the geotechnical report are dependent on the type of project and the amount of investigations performed by the DB Firm. Most DB projects will generally require either a roadway subsurface investigation or a structure related subsurface investigation, or both.

This chapter describes the format for presentation of geotechnical data for each type of project. General outlines of the topics to be discussed in the geotechnical report are presented. Not every project will follow these formats exactly. However, for any given project, certain items may be unnecessary while other items will need to be added. Also included in this chapter are discussions on the finalization and distribution of the geotechnical report.

## 10.4 ROADWAY SUBSURFACE INVESTIGATION

The geotechnical report for a roadway subsurface investigation should present data and analysis information. The following is a general outline of the topics, which should be included.

a. Soil conservation services (SCS/USDA) and USGS maps.
b. Description of significant geologic and topographic features of the site.
c. Description of width, composition and condition of existing roadway.
d. Description of methods used during subsurface exploration, in-site testing, and laboratory testing along with the raw data from these tests.
e. Analysis of the geotechnical data and provide geotechnical engineering recommendations.

## 10.5 STRUCTURES SUBSURFACE INVESTIGATION

The geotechnical report for a structure should present geotechnical data and analysis information. The following is a general guide to the contents of a typical structure subsurface investigation report.

a. Vicinity map, including potentiometer map, USGS and soil survey maps (SCS/USDA), depicting project location.

b. Description of the methods used in the field investigation, including the types and frequencies of all in-site tests.
c. Boring location plan plots of boring logs and/or cone soundings. Note the size of rock core sampled. The minimum acceptable rock core diameter will be 1.875 inch, but 2.5 inch diameter rock cores are preferable.
d. Analysis of the geotechnical information.
e. Results of corrosively tests.
f. Any other pertinent information.
g. Description of the laboratory-testing phase, including any special test methods employed.
h. Suggestions on handling any potential problems.

## 10.6 DESIGN-BUILD SCOPE OF WORK

The following are some examples of what should be considered for inclusion in the DB scope of work.

1. Any geotechnical or design restrictions placed on the DB Firm.
2. Any special requirements that must be met such as additional geotechnical work or any required testing over and above what is normally required.

## 10.7 TECHNICAL PROPOSALS AND BIDDING PHASE

The MDT Geotechnical Engineer is a member of the TRC and will be responsible for reviewing and grading Technical Proposals for the following:

1. Proposals meet appropriate codes and guidelines.
2. Handling of geotechnical problems.
3. Meets any given restrictions and special requirements.
4. Proposed geotechnical investigation, design and construction procedures, including Quality Control and Quality Assurance.
5. Innovative design and construction practices.

## 10.8 DESIGN/CONSTRUCTION PHASE

The MDT Geotechnical Engineer will be responsible during the design/construction phase for the following:

1. Review of construction criteria and documentation.
2. Issue escalation and construction problem resolution.
3. Independent Quality Assurance (IA) Engineering.

# CHAPTER ELEVEN

# *STRUCTURES PROCESS*

## 11.1 STRUCTURES GUIDELINES FOR DESIGN-BUILD

The Structures Manual will remain virtually intact for DB projects since the issues contained in this document are structural design parameters that are not project specific. The manual contains issues that require project specific input and decisions that need to be addressed and the directions specified in the RFP and Design and Construction Criteria Package. Most urban or high profile projects have certain issues that are mandated due to public input and corridor uniformity. These specific features that may be required include: aesthetic features, specific structure types, minimum bridge length, minimum span lengths, bent types, cross-sections, foundation types, lighting, navigational channel requirements, coloration, surface textures, wall types and utility attachments. Decisions and issues that are normally addressed during the design phase of a project that MDT does not wish to leave up to the DB Firm will need to be addressed and mandated in the RFP and Design and Construction Criteria Package. This includes items such as the minimum amount of foundation testing and soils tests to be performed, content and frequency of public meetings and construction phasing. Any desired feature must be described in enough detail to adequately transfer the requirements to the DB Firm so a responsive proposal can be developed.

As a minimum, the cross-sectional requirements, operational importance of the bridge, environmental classifications and limits of hazardous materials must be stated in the RFP. Consideration should be given to performing a geotechnical investigation, lead paint survey, hydraulic analysis for issues not directly affected by the structure selection and providing this information to the DB Firm. Known permit issues affecting structure type or construction methods also need to be included in the RFP and Design and Construction Criteria Package. Supplying this type information to the DB Firm will provide for uniformity in the engineering assumptions used to produce the technical proposal, minimize the risk of unforeseen issues and keep costs to a minimum. The RFP and Design and Construction Criteria Package will include a requirement that the DB Firm provide a type, size and location report with the Technical Proposal.

# CHAPTER TWELVE

# *PRELIMINARY ESTIMATES*

## 12.1 PRELIMINARY ESTIMATES PROCESS FOR DESIGN-BUILD PROJECTS

If there is only one project in the DB contract, one of the following pay item codes will utilized:

| | METRIC | ENGLISH | UNIT |
|---|---|---|---|
| 1. Design-Build (Roadway Construction) | 800000000 | 800000000 | Lump Sum |
| 2. Design-Build (Bridge Construction) | 800000001 | 800000001 | Lump Sum |
| 3. Design-Build (Buildings) | 800000002 | 800000002 | Lump Sum |

The Preliminary Cost Estimate for Design-Build projects may be derived in a number of ways:

1. Data from the District
2. Historical Data from current projects (Contract Plans Bureau)
3. Long Range Estimate (LRE)
4. Bid Tabs from a similar current project
5. Square Foot Cost from a similar bridge project

The cooperative effort of the DB Team, the District and Contract Plans Bureau in providing "possible" anticipated pay items, a well defined scope-of-work and a "major checklist" of work tasks will be very helpful in improving the accuracy of the DB project estimate.

Design Costs (PE) will be included in the Preliminary Estimate Cost as well as CEI services costs. The following is a recommendation on how to estimate these costs:

| | Dollar Range | Percent |
|---|---|---|
| * 1. PE | $0 to $1,000,000 = | 20% of the Construction Cost |
| | $1,000,000 to $5,000,000 = | 15% of the Construction Cost |
| | $5,000,000 up = | 10% of the Construction Cost |
| * 2. CEI | $0 to $1,000,000 = | 15% of the Construction Cost |
| | $1,000,000 to $5,000,000= | 12% of the Construction Cost |
| | $5,000,000 up = | 10% of the Construction Cost |

The "automatic award" criteria will be increased to 25% (with FHWA'S approval) instead of the current 10%. This means that MDT will only review those projects that are 25% or more above the Estimate.

Geotechnical costs will be included in the Preliminary Estimate. This will vary, depending on the amount of preliminary geotechnical work was perform upfront by MDT. (Range = 0 - 5% of Construction Cost)

The costs of Permits will also be included in the Preliminary Cost Estimate. (Check with Environmental Services Bureau for additional cost information)

Right of way will (not) be included in the Preliminary Cost Estimate because Right of Way Bureau may purchase any additional right of way before the project is advertised.

** Check with the Contract Plans Bureau, Districts and/or other appropriate MDT Bureaus and Sections for additional cost information.*

# CHAPTER THIRTEEN

# *CONTRACT ADMINISTRATION*

## 13.1 GENERAL

These guidelines are intended to identify issues and concerns that are unique to DB projects and are for use by MDT personnel.

## 13.2 SCOPE OF SERVICES FOR CEI CONSULTANT PROJECTS

When MDT hires the CEI Consultant for a DB project instead of including these services in the DB Contract, the scope of services will differ from conventional design/bid/build projects and should be supplemented and revised as follows:

**13.2.1 Design Coordination.** Unlike conventional design/bid/build projects, DB projects requires that the DB Firm complete the design of the project after bid award. The CEI Consultant must be under contract and working after the contract is awarded because the DB Firm may choose to begin some construction phases very soon after notice to proceed. Typically, the DB Firm will require some time after award to complete design work, especially for larger projects, before any construction begins. Since the CEI Consultant is available, it is desirable to assign the responsibility for design review coordination to the CEI Consultant. It is very important that the CEI Consultant have knowledge and experience in the design of projects, including MDT plans processing procedures and the following project specific issue areas: geotechnical, structural, buildings, roadway, drainage, utilities and permitting. The degree to which the CEI Consultant will be involved in the actual review of design submittals should be clearly covered in the CEI Consultant scope of services.

**13.2.2 Quality Control/Quality Assurance/Independent Assurance (QC/QA/IA).** DB projects usually require the DB Firm to perform QC level materials sampling as well as QC level inspection. The CEI Consultant, whether hired by the DB Firm or MDT, is expected to perform predominantly QA sampling, testing and inspection. Wneh the CEI Consultant is contracted by MDT, the scope of services should reflect this approach, since conventional scope of services stress only QC level involvement. Since the environmental permit agencies may not allow DB Firms to perform permit testing such as turbidity, the CEI Consultant could be expected to perform these tests, if required, and any anticipated testing should be covered by the scope of services. The scope of services should address specific QA tasks that must be performed by the CEI Consultant. Independent Assurance (IA) Engineering will be performed by MDT.

**13.2.3 Scheduling.** Most DB projects will require the DB Firm to submit a critical path method (CPM) schedule that will be used to determine the DB Firm's monthly estimate. The CPM schedule will be required to be resource loaded and will generate project costs over time. MDT will review and approve the CPM schedule for reasonableness and will base the monthly estimates on the approved schedule. Whether the CEI Consultant is hired by the DB Firm or by MDT, it is important that the CEI Consultant have proven experience with CPM scheduling, since this experience will be critical to

managing payment of the DB Firm. For a CEI Consultant hired by MDT, the scope of work should specify this experience requirement and this experience should be specified in the RFP when CEI services are to be included in the DB Contract.

**13.2.4 Staffing.** DB projects will require much less QC than for conventional projects, so the number of field inspectors that will be required is also less. In addition, because of simpler monthly estimates and final estimates, there should be less need for Office Engineer support.

## 13.3 PAYMENTS

**13.3.1 Monthly Estimates.** The DB Firm will develop a list of general pay items based on a resource loaded CPM schedule. The pay items may contain a number of individual units and the monthly payment due the DB Firm will be based on the number of units within a pay item completed of the total planned. If the total for a pay item is $100,000.00 and 5 out of 10 of the units were completed in one month, then the DB Firm is due $50,000.00 for that month.

**13.3.2 Final Estimate.** The final estimate will be required as usual, but since all pay items are lump sum, the effort involved in preparing final estimate documents is greatly reduced. It is still recommended that MDT guidelines and procedures be followed to maintain the integrity and continuity of the Final Estimate Package.

**13.3.3 Supplemental Agreement Compensation.** Compensation for extra work may be required. The supplemental agreement process is the same as for conventional projects except that individual pay items are not available for the DB Firm's basis of payment. Under this circumstance, it is very important that detailed supporting calculations are submitted by the DB Firm with the request for additional compensation. The calculations should be detailed enough to allow MDT to perform a comprehensive evaluation of the validity of the DB Firm's cost estimate.

**13.3.4 Pay Adjustments for Deficiencies.** Adjustments will be performed according to an approved table of values referred to as the Schedule of Values that will be based on historical prices. The Schedule of Values will be developed after award of the contract through mutual agreement of MDT and the DB Firm.

## 13.4 RECORDS

**13.4.1 Daily Report of Construction (DRC).** DB projects will require a DRC form to be filled out each day for every construction operation underway. Particular attention should be paid to recording what work is completed for use in preparing the monthly payment estimate.

## 13.4.2 Shop Drawings.

### 13.4.2.1. Definitions

(a) Shop Drawings: All working, shop and erection drawings, associated trade literature, calculations, schedules, manuals and similar documents submitted by the DB Firm to define some portion of the project work. The type of work includes both permanent and temporary works as appropriate to the project.
(b) Permanent Works: All the permanent structures and parts thereof required for the completed contract.
(c) Temporary Works: Any temporary construction work necessary for construction of the permanent works. This includes falsework, formwork, scaffolding, shoring, temporary earthworks, sheeting, cofferdams and special erection equipment.
(d) Construction Affecting Public Safety: Construction that may jeopardize public safety such as structures spanning functioning vehicular roadways, pedestrian walkways, railroads, navigable waterways and walls or other structure foundations located in embankments immediately adjacent to functioning roadways. It does not apply to those areas of the site under the DB Firm's control and outside the limits of normal public access.
(e) Falsework (shoring) includes any temporary construction work used to support the permanent structure until it becomes self-supporting. Falsework includes steel or timber beams, girders, columns, piles and foundations and any proprietary equipment including modular shoring frames, post shores and adjustable horizontal shoring.
(f) Formwork includes any structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Formwork comprises common materials such as wood or metal sheets, battens, soldiers and walers, ties, proprietary forming systems such as stay-in-place metal forms and proprietary supporting bolts, hangers and brackets.
(g) Scaffolding is an elevated work platform used to support workmen, materials and equipment, but not intended to support the structure.
(j) Specialty Engineer versus Engineer of Record: For the purpose of the shop drawing review process as set forth in this chapter, the term "Specialty Engineer" will apply to the initiator or producer of shop drawings, regardless of whether or not that party is normally the Engineer of Record or the Specialty Engineer. The term "Engineer of Record" will apply to the shop drawing checker and certifier, regardless of whether or not that party is normally the Engineer of Record or the Specialty Engineer.

**13.4.2.2 Work Items Requiring Shop Drawings.** In general, MDT requires shop drawings for items of work not fully detailed in the plans that require additional drawings and coordination prior to constructing the item, including but not limited to:

(a) Bridge components not fully detailed in the plans such as concrete beam and steel girder details, post-tensioning details, bridge railing and handrails.
(b) Retaining wall systems.
(c) Precast Reinforced Box Culverts.

(d) Non-standard lighting, signalization and signing structures/components
(e) Building structures.
(f) Drainage structures, attenuators and other nonstructural items.
(g) Design and structural details furnished by the DB Firm in compliance with the Contract.
(h) Temporary Works affecting public safety.

Other provisions of the RFP and Design and Construction Criteria Package may waive the requirement for submittals for certain items such as items constructed from standard detailed drawings. Review the RFP and Design and Construction Criteria Package to determine the submittals required.

**13.4.2.3 Schedule of Submittals.** Prepare and submit a schedule of submittals that identifies the work for which shop drawings apply. For each planned submittal, define the type and approximate number of drawings or other documents that are included and the planned submittal date, considering the processing requirements herein. Submit the schedule of submittals to MDT within 60 days of the start of construction operations and prior to the submission of any shop drawings. Coordinate subsequent submittals with construction schedules to allow sufficient time for review and re-submittal as necessary.

**13.4.2.4 Style, Numbering, and Material of Submittals.**

**13.4.2.4.1 Drawings:** Furnish two clearly legible photographic or xerographic copies of all shop drawings that are necessary to complete the structure in compliance with the design shown on the plans. Prepare all shop drawings using the same units of measure as those used in the plans. Use sheets no larger than 24 by 36 inches [610 by 915 mm]. Consecutively number each sheet in the submittal series and indicate the total number in the series. Include on each sheet the following items as a minimum requirement: the complete Project Identification Number, Bridge Number(s), drawing title and number, a title block showing the names of the fabricator or producer and the DB Firm for which the work is being done, initials of the person(s) responsible for the drawing, date on which the drawing was prepared, location of the item(s) within the project, DB Firm's approval stamp with date and initials, and when applicable, the signature and seal of the Specialty Engineer. A re-submittal will be requested when any of the required information is not included.

**13.4.2.4.2 Other Documents:** Provide four sets of original documents or clearly legible photographic or xerographic copies of documents other than drawings, such as trade literature, catalogue information, calculations, and manuals. Provide sheets no larger than 11 by 17 inches [280 by 432 mm]. Clearly label and number each sheet in the submittal to indicate the total number of sheets in the series. Provide an additional three sets of documentation for items involved with precast, prestressed components. Provide an additional two sets of documentation for items involving structural steel components. Prepare all documents using the same units of measure as those used in the plans. Bind and submit all documents with a Table of Contents cover sheet. List on the cover sheet the total number of pages and appendices, and include the complete Financial Project Identification Number, a title referencing the submittal item(s), the name of the firm and person(s) responsible for

the preparation of the document, the DB Firm's approval stamp with date and initials, and, when applicable, the signature and seal of the Specialty Engineer and the approval stamp of the Engineer of Record. Submit appropriately prepared and checked calculations and manuals that clearly outline the design criteria. Include on the internal sheets the complete Project Identification Number and the initials of the person(s) responsible for preparing and checking the document. Clearly label trade literature and catalogue information on the front cover with the title, Project Identification Number, date and name of the firm and person(s) responsible for that document.

### 13.4.2.5 Submittal Paths and Copies.

**13.4.2.5.1 General:** Shop drawings are not required for prequalified items. For non-prequalified items, determine the submittal path to be followed based on the identity of the Engineer of Record as shown adjacent to the title block on the structural plan sheets and on the key sheets of roadway plans, signing and pavement marking plans, and/or lighting plans. At the preconstruction conference, MDT will notify the DB Firm of any changes to the standard submittal process. MDT's review stamp will signify an officially reviewed shop drawing and will state either "Released for Construction" or "Released for Construction as Noted". Submit shop drawings to the appropriate MDT Bureau and send a copy of the letter of transmittal the MDT Project Manager. For work requiring other information such as catalog data, procedure manuals, fabrication/welding procedures and maintenance and operating procedures, submit the required number of copies to the MDT Proect Manager. Provide copies of material certifications and material tests to the MDT Project Manager.

**13.4.2.5.2 Building Structures:** Submit working, shop and erection drawings and all correspondence related to building structures, such as Rest Areas, MCS facilities, Office Buildings and Maintenance Warehouses, to the Architect of Record for review and approval. Send a copy of the transmittal to the MDT Project Manager.

**13.4.2.5.3 Temporary Works:** For Construction Affecting Public Safety, submit shop drawings to the Engineer of Record and include the applicable calculations for the design of special erection equipment, falsework and scaffolding. Ensure that each sheet of the shop drawings and the cover sheet of the applicable calculations is signed and sealed by the Specialty Engineer. Transmit the submittal and copies of the transmittal letters in accordance with Section 13.4.2.4 through 13.4.2.5.5, as appropriate.

**13.4.2.5.4 Formwork and Scaffolding:** The DB Firm is solely responsible for the safe installation and use of all formwork and scaffolding. MDT does not require any formwork or scaffolding submittals unless such work would be classified as Construction Affecting Public Safety.

**13.4.2.5.5 Other Miscellaneous Design and Structural Details Furnished by the DB Firm in Compliance with the Contract:** Submit shop drawings and applicable calculations to the Engineer of Record. Ensure that each sheet of the shop

drawings and the cover sheet of the applicable calculations is signed and sealed by the Specialty Engineer. Transmit the submittal and copies of the transmittal letters in accordance with the requirements of Section 13.4.2.4 through 13.4.2.5.5, as appropriate.

### 13.4.2.6 Processing of Shop Drawings.

**13.4.2.6.1 DB Firm Responsibility for Accuracy and Coordination of Shop Drawings:** Coordinate, schedule and control all submittals with a regard for the required priority, including those of the various subcontractors, suppliers, and engineers, to provide for an orderly and balanced distribution of the work. Coordinate, review, date, stamp, approve and sign all shop drawings prepared by the DB Firm or agents (subcontractor, fabricator, supplier) prior to submitting them to MDT. Submittal of the drawings confirms verification of the work requirements, units of measurement, field measurements, construction criteria, sequence of assembly and erection, access and clearances, catalog numbers and other similar data. Indicate on each series of drawings the specification section and page or drawing number of the construction plans to which the submission applies. Indicate on the shop drawings all deviations from the construction plans and itemize all deviations in the letter of transmittal. Likewise, whenever a submittal does not deviate from the construction plans, clearly state so in the transmittal letter. Schedule the submission of shop drawings to allow for a 14-day MDT review period or a review period as specified in the RFP. The review period commences with MDT's receipt of the valid submittal or re-submittal and terminates with transmittal of the submittal back to the DB Firm. A valid submittal includes all the minimum requirements outlined in 13.4.2.4. Allow a 14-day MDT review time for resubmittals or a review period as specified in the RFP. Submit shop drawings to facilitate expeditious review. The DB Firm is discouraged from transmitting voluminous submittals of shop drawings at the same time. For submittals transmitted in this manner, allow for the additional review time that may result. Only shop drawings distributed with the "red ink" stamps are valid and all work that the DB Firm performs in advance of MDT's release of shop drawings will be at the DB Firm's risk.

**13.4.2.6.2 Scope of Review by the Engineer of Record:** The Engineer of Record's review of the shop drawings is for conformity to the requirements of the RFP and the Design and Construction Criteria Package (Contract Documents) and to the intent of the design at a minimum. The Engineer of Record's review of shop drawings, that include means, methods, techniques, sequences and construction procedures is to determine if effects on the permanent works are acceptable.

**13.4.2.6.3 Special Review by the Engineer of Record of Shop Drawings for Construction Affecting Public Safety:** For Construction Affecting Public Safety, the Engineer of Record will make an independent design review of all relevant shop drawings and similar documents. Do not proceed with construction of the permanent works until receiving the Engineer of Record's approval. Send a copy of the approval letter to the MDT Project Manager. The review of these shop drawings is for overall structural adequacy of the item to support the imposed loads.

### 13.4.2.7 Other Requirements for Shop Drawings for Bridges.

**13.4.2.7.1 Shop Drawings for Structural Steel and Miscellaneous Metals:** Furnish shop drawings for structural steel and miscellaneous metals. Shop drawings will consist of working, shop and erection drawings, welding procedures and other working plans showing details, dimensions, sizes of material and other information necessary for the complete fabrication and erection of the metal work.

**13.4.2.7.2 Shop Drawings for Concrete Structures:** Furnish shop drawings for concrete components that are not cast-in-place and are not otherwise exempted from submittal requirements. Furnish shop drawings for all details that are required for the effective prosecution of the concrete work and are not included in the RFP and the Design and Construction Criteria Package (Contract Documents) such as: special erection equipment, masonry layout diagrams and diagrams for bending reinforcing steel, in addition to any details required for concrete components for the permanent work.

## 13.5 ROLE OF MDT'S PROJECT MANAGER (PM)

MDT's PM will be responsible for coordinating and overseeing the engineering, inspection and construction of the DB project. The PM responsibilities may include, but are not limited to:

- Working with the MDT Design-Build Team, Contract Plans Bureau, District and other appropriate MDT Bureaus and Sections in developing the RFP and the Design and Construction Criteria Package.
- Coordinating with the FHWA representative on Full Oversight projects.
- Participating in the Technical Review Committee (TRC), including review of the Letters of Interest to develop the short-list of DB Firms.
- Working with the Contract Plans Bureau responding to DB Firm's inquiries.
- Participating in the pre-bid meeting, if applicable.
- Participating with the TRC's in the evaluation of technical proposals.
- Acting as MDT's liaison with the DB Firm during construction of the project in general and as MDT's person in responsible charge of the project.
- Coordinating the review of the DB Firm's submittals to MDT during design and construction.
- Making periodic site reviews.
- Reviewing and approving periodic progress payments.
- Monitoring DBE participation.
- Ensuring MDT receives final documents as specified in the contract.
- Ensuring that proper CEI services are performed during construction.
- Working with the District, Construction Bureaus and other appropriate MDT bureaus and Sections to develop supplemental agreements, if applicable.
- Ensuring that the DB Firm's Quality Control (QC)/Quality Assurance (QA) plan is being followed.
- Ensuring that all environmental commitments are honored.
- Ensuring that appropriate documentation takes place at each step in the process.

- Furnishing the DB Firm an adequate supply of all MDT standard forms necessary to carry out the terms of the contract.
- Conducting performance evaluations.

The MDT PM must rely heavily on the multi-disciplined MDT Design-Build Team in order to: (a) develop the RFP and Design and Construction Criteria Package, (b) evaluate the Letters of Interest (LOI) and technical proposals, and (c) oversee the design, construction and CEI services of the project. The Construction Engineer, District Administrators and discipline Bureau Chiefs should assign the appropriate staff to assist the PM administer the DB Contract. Due to the complexity of coordinating a DB project, the Design-Build Engineer, PM and members of the MDT Design-Build Team must work in concert to successfully complete all elements of the contracting and administrative process required by DB projects.

# CHAPTER FOURTEEN

# *MATERIALS ACCEPTANCE PROCESS (MAP) FOR DESIGN-BUILD CONTRACTS*

## 14.1 GUIDELINES FROM THE MATERIALS BUREAU

A. All the materials used on the project must be accepted by MDT and must meet the requirements of the Standard Specifications and other governing documents.

B. Refer to the Materials Manual for details on specific requirements and sub-processes in various material groups.

C. The materials are divided in four groups for acceptance purposes.

D. Bidders submit details on Group 4 materials with their bids.

E. Bid Proposals should include information regarding cost and resources associated with the QC and QA (if included in the DB Contract).

F. Bids with Group 4 materials must include the cost analysis including the immediate cost vs. long term cost savings over the design life. The Materials Bureau will review all proposals for cost saving innovative use of materials.

G. The Material Acceptance Process (MAP) covers all the process requirements of Quality Control (QC), Quality Assurance (QA) [if included in the DB Contract], Resolution (R) and Independent Assurance (IA).

H. Not later than 21 calendar days prior to construction commencement, the DB Firm will prepare and submit a complete project-specific list of material items and quantities to be used on the project as a Materials Guide Schedule (MGS) in the same format as MDT's current MT-601. Those items in MT-601 that are not to be used on the project will not be included in the MGS and conversely, items that are not in MT-601 and are intended for use on the project will be included on the MGS. The MGS will be maintained throughout the project and will reflect quantity changes in all materials previously placed and any additional materials placed. No work on activities that require testing can commence until the MGS has been reviewed and accepted by MDT.

I. Testing of materials accepted by Field Sampling and Testing will be performed immediately following completion of material placement.

J. Testing personnel will report the test results upon completion of the testing.

K. The MGS will be kept up-to-date and provided by the DB Firm on a monthly basis to MDT's Project Manager. The MGS will specify each material placed by material number and related information, total quantity placed throughout the project duration, quantity placed since the previous submittal and any additional materials identified with related quantities and testing details. These quantities will facilitate verification that minimum materials acceptance testing requirements in accordance with MT-601 are being performed.

L. At the completion of the project, the final MGS will be in the same format as the monthly reports.

M. The DB Firm must meet all the requirements for successful completion of the MAP.

N. The proposed MAP will include a general QC Plan. The QC Plan will include material specific information, including identifying the persons responsible in charge for various activities. See the Materials Manual for further information regarding QC Plan requirements.

O. The materials used on construction projects are divided into the following four groups.

## 14.2 Group 1: Materials Accepted By Field Sampling and Testing

a. Definition: These materials are accepted based on the test results of the samples taken from the point of use, or otherwise as stated in the Standard Specifications.

1) These materials are listed in MT-601 or other governing documents.

2) An MGS must be created and submitted in accordance with 14.1 Guidelines herein.

b. Acceptance:

1) Acceptance is based on the DB Firm's QA testing (if CEI services are included in the DB Contract).

2) DB Firm's Quality Control (QC) testing may be required.

3) The test results must meet the requirements specified in the Standard Specifications and other governing documents.

c. Process:

1) Additional requirements will be applied as described in the DB Contract, QC Plan, Independent Assurance (IA) Program and the Materials Manual.

d. Contact:

1) The local District Materials Supervisor is the primary contact for more information on this group of materials.

## 14.3 Group 2: Fabricated Structural Steel and Miscellaneous Metal Structures

a. General:

1) The fabricated structural steel and miscellaneous metal structures include major steel structures such as steel bridge components and overhead cantilevered sign supports.

2) During the design development, the DB Firm may add any other structures to the list of Group 2 materials.

b. Acceptance:

MDT accepts these structures based on the fabricator's quality control inspection, testing, and Certification and MDT's IA verification.

c. Process:

1) The DB Firm will notify the MDT (Bridge Bureau) regarding the types and locations of structural steel and other metal structures that are planned to be on the project. Notification will occur within 30 calendar days after contract award.

2) The DB Firm will submit a complete list of all identified structures, location of the metal fabrication, and the anticipated fabrication schedule to MDT. The fabrication schedule will include information regarding the anticipated total duration of the fabrication units, the number of days per week the fabrication facility will be fabricating and the number of work shifts the fabricator intends to work.

3) The DB Firm will perform the required quality control inspection and testing and coordinate the QA (if CEI services are part of the DB Contract) and IA with MDT. Any nonconformance or conflicts between the QC, QA and IA will be resolved so that the fabrication work results in full compliance with MDT requirements.

4) The DB Firm report the QA results (if CEI services are part of the DB Contract) of the inspections and submit final the Certification letter to the MDT Project Manager.

5) The MDT Project Manager will acknowledge receipt of the final Certification letter as a part of the certification statement in the "Project Manager's Materials Certification Letter" to the Materials Bureau.

d. Contact:

1) The Materials Bureau is the primary contact for more information regarding the quality control and quality assurance inspections and testing of this Group of Materials.

## 14.4 Group 3: Manufactured and Incidental Materials

a. Definition:

1) These materials are manufactured products not listed in MT-601, and

1) Any product/material that requires only approval and installation on the project.

b. Acceptance:

1) These materials will be accepted based on Manufacturer/ Supplier's certification. The certification will meet the requirements as described in MT-601.

2) In addition to Manufacturer's certification, the DB Firm will provide certification warranting the placed products. The DB Firm will provide one certificate covering all incidental materials used within the project limits at the time of project final certification.

c. Process:

1) The DB Firm will submit individual certifications as the materials arrive on the project site.

2) The Acceptance/Verification personnel will, upon receipt of the certification, (1) verify the minimum requirements for test results, and (2) verify that the batch number/s listed are acceptable.

3) At the end of the project, the DB Firm will account for all the Certifications and provide them to the MDT Project Manager.

4) The MDT Project Manager will certify that all Certifications were received and the materials were found in compliance with the Specifications. This will be included as a certification statement in the "Project Managers Material Statement" to the Materials Bureau.

d. Contact:

1) The Materials Bureau is the primary contact for more information on the materials in this group.

## 14.5 Group 4: Unapproved/New Materials

a. Definition:

1) These are the materials that are not specified in MDT's references.

2) It also includes innovative use of approved materials.

b. Acceptance:

1) The DB Firm will obtain MDT Materials Bureau authorization for the use and acceptance criteria of such materials prior to use.

2) The DB Firm will propose acceptance criteria as the design is being developed, based on the materials Groups described herein.

3) The Materials Bureau will assist the DB Firm in developing acceptable criteria for such materials when necessary.

c. Process:

1) The DB Firm, during design developmental reviews, will define and obtain approval from the Materials Bureau, which of the previously defined Groups the material is classified.

2) The process for the appropriate Group will be followed.

d. Contact:

1) The Materials Bureau is the primary contact for more information on the materials in this group.

## CHAPTER FIFTEEN

## *FINAL ESTIMATE GUIDELINES FOR DESIGN-BUILD PROJECTS*

A. The DB Firm will assign the schedule of values to the activities in the CPM (Critical Path Method) schedule. This will be the basis for the monthly progress payments.

B. The DB Firm will have an approved DBE Affirmative Action Plan prior to a contract being awarded.

C. When a deficiency is determined, the MDT Project Manager will apply a reduction in payment based on the area of deficiency at the item's unit price table set forth in the contract.

D. Monthly payments will be based on the DB Firm's invoice and the approved payout schedule less payments previously made.

E. The DB Firm will make a request for payment by submitting an invoice no later than Twelve O'clock noon Monday after the monthly estimate cut-off date based on the amount of work performed or completed.

F. If applicable, retainage will be released when all provisions in the contract have been met.

G. In addition to submittal of the documents required by Standard Specifications and other governing documents, the following items will be added to the list of submittals:

1. As-built (record) drawings
2. Design plans and calculations
3. Geotechnical reports
4. Load rating of as-built structure(s)

H. Monthly Progress payments will be for that portion of the work completed, determined by the MDT Project Manager, as compared to the total work contracted.

I. The monthly payments will be approximate only and will be subject to reduction for overpayments or increase for underpayments on preceding payments to the DB Firm and to correction in the subsequent estimates and the final estimate and payment.

J. The DB Firm and MDT Project Manager will maintain a file containing Pay Item Summary and Certification Sheet and any documented adjustments to include: Supplemental Agreements, Work Orders, Pay Reductions or Penalties that may have occurred on project.